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STAR PROBE
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A Calendar of Upcoming Events

September 28-October 1, 1975:
Electronic and Aerospace Systems Convention at Stauffers Inn, Washington, DC. Info: Meetings Inquiries, IEEE, 345 East 47 St., New York City 10017.

October 3-5, 1975:
WINDYCON 2 (Chicago area SF conference) at Ascot House, Chicago. Guest of Honor: Bob Tucker; Fan Guest of Honor: Joni Stopa; Toastmaster: Bob Passovoy. Registration: $4 in advance, $6 at the door. Info: Box 2572, Chicago, Illinois 60690 (Please send all mail to this address; do not query the hotel.)

October 20-22, 1975:
Sixth US Computer Chess Championships at the ACM Annual Conference, Radisson Hotel, Minneapolis, Minnesota. Info: Earl Joseph, Univac; Univac Park, PO Box 3525, Saint Paul, Minnesota 55165.

October 31, 1975:
Deadline for entries in the Second Annual New England Science Fiction Association SF Story Contest. Open to New England residents and NESFA members. Info: Box G, MIT Branch PO, Cambridge, Massachusetts 02139.

April 16-19, 1976:
MANCON 5 (27th British National SF Convention) at Owens Park, Manchester, England. Guest of Honor: Robert Silverberg; Fan Guest of Honor: Peter Roberts. Info: Peter Presford, 10 Dalkeith Road, South Reddish, Stockport SK5 7EY, England. North American agent: Bill Burns, 48 Lou Avenue, Kings Park, New York 11754. Registration: $6 attending, $2 supporting.

September 1-6, 1976:
MIDAMERICON (34th World Science Fiction Convention) at Hotel Muehlbach, Kansas City, Missouri. Guest of Honor: Robert A. Heinlein; Fan Guest of Honor: George Barr; Toastmaster: Bob Tucker. Registration: $15 attending, $5 nonattending until January 1, 1976; $20 attending, $6 nonattending until May 1, 1976. Info: Post Office Box 221, Kansas City, Missouri 64141.

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The Mars Nomenclature Working Group of the International Astronomical Union has named a 100-kilometer-wide crater centered at 55° South, 194° West jointly for W. W. Campbell, a Berkeley astronomer, and John W. Campbell Jr., the late Editor of Astounding/Analog, who, through his magazine, helped to stimulate America's space program. Dr. Carl Sagan, of Cornell University, suggested John Campbell's name to the Working Group, which was chaired by Professor Gerard de Vaucouleurs, of the University of Texas, Austin. The name was officially confirmed at the August 1973 meeting of the International Astronomical Union in Sydney, Australia, but no public announcement was made at that time. Campbell is in very good company, surrounded not only by the likes of Kepler, Brahe and Copernicus, but a crater named Wells is nearby . . . and so is one named for Stanley G. Weinbaum. The region is just north of Mare Chromium, the Sea of Time.

Martian crater named for John W. Campbell, Jr.

the SF game

Whenever I'm invited to speak before a group of people who are not science fiction readers, someone in the audience inevitably asks, "Why are science fiction writers so good at predicting the future?"

The answer, of course, is that SF writers are not terribly good at predicting the future. In fact, they're not even trying to. It just happens that they're better at such predictions than any other body of prognosticators, amateur or professional.

To begin with, science fiction stories do not predict THE future because there is no such thing. Unless you believe in a totally fixed and immutable timestream (in which case it doesn't matter what you do, everything's frozen in cement already), then the future *must be* a series of events that have not yet happened, and therefore can be altered, changed, diverted, moved, shaped by myriads of individual decisions. There is no one certain future; there are countless possible futures, with every moment bringing new opportunities to hand.

Science fiction writers explore those many possible futures. Each SF story is an exploration of a potential future. If human history can be thought of as a migration of billions of people across the vast landscape of time, then the science fiction writers are the scouts who range far ahead and bring back occasional reports on what the territory up ahead is like, so that the main body of the people can choose their course more intelligently, avoiding the badlands and picking out the sunny, well-watered meadows and cool, green hills.

In a typical year, thousands of such glimpses of possible futures will be published in science fiction magazines and books. Almost every one of these "predictions" of the future will be dead wrong. The futures depicted in those stories will never come to pass. Yet there are more accurate and usable forecasts of the future in SF than in any other body of literature—including the meticulously researched reports of the professional, scientific futurologists.

How can this be? Scientific forecasting has become a respectable, specialized business. It originated with the RAND-type think-tanks of

World War Two and the Cold War, and has now grown to include technological and business forecasting groups in almost every major industry in the United States, as well as in many Government agencies, especially the military.

Yet, if you read back over the futurologists' reports of just a few years ago, you find that they are hopelessly inaccurate. Business forecasts are more often wrong than right, military intelligence forecasts are notoriously short-sighted, and even as prestigious a book as Herman Kahn's *The Year 2000* has a quaint air of absurdity about it, with its total lack of foresight into the energy and raw materials crises, and the growing instability of American politics.

Forecasts made by professional futurologists grow increasingly inaccurate with time. The "technical assessment" group of a major corporation may make a rather good forecast of the market growth potential for a given product for the coming fiscal year, for example. But its forecast for five years ahead will usually be very unreliable. And a ten-, twenty-, or fifty-year forecast is probably worthless.

Science fiction predictions are just the opposite. In general, a science fiction story dealing with events of next year will be badly unrealistic. But a story set fifty or a hundred years in the future has a much better chance of being accurate than a futurological forecast.

Why? Because the futurologists have to stick to the facts! They can only deal with what they *know* is possible. They cannot handle the "wild card" possibilities. In 1960, no valid futurological forecast could be made on the assumption that the President of the United States would be assassinated. In 1975, no believable futurological assessment of the energy problem can include the possibility that intelligent aliens from an advanced civilization will give us cheap, efficient, pollution-free fusion reactors next year. Or next decade. Or ever.

Yet it is these unpredictable "wild card" events that shape history, just as much as the steady, extrapolatable progress in technical, social, and economic developments.

There's an old joke that a futurologist's forecast of the pollution

problems of New York City in 1875 would have predicted that by the turn of the century, the city would be buried under horse manure. Such forecasts today concentrate with equally narrow vision on the pollution problems of automobiles. Science fiction writers, however, predict teleportation booths and wonder what to do with all the freeways that have been built everywhere.

To a large extent, science fiction predictions are based on contemporary science. There is very little in SF's marvelous cornucopia of inventions that has not appeared first in the scientific journals. But, again, while the professional scientists concentrate their efforts on proving that their theory is correct, or that their experiment works, the SF writers can take that part of it for granted, and concentrate their efforts on examining how this new discovery or invention affects human beings.

To the scientists and engineers laboring over NASA's Space Shuttle, the problems of building a reliable, reusable spacecraft are the most important and difficult problems in the world. Yet science fiction writers blithely assume that the Shuttle not only will work, but that it will be the first generation of a steadily-improving series of spacecraft that make colonization of the Moon and cislunar space possible, profitable, and attractive.

The professional scientists are constrained to sweat over the problems. The professional SF writers are free to examine the results of solving those problems.

The professional futurologists are constrained to deal only with those future developments that can be logically extrapolated from current events. The SF writers can, do, and must include the "wild card," unpredictable, unlikely events in their descriptions of the future.

Science fiction is always based on verifiable scientific fact. (Good science fiction, that is.) But if SF stuck strictly to the agreed-upon "facts" of science, it would be as shortsighted and pedantic as the scientific establishment itself. Science fiction uses those facts as a starting point to explore any and every cranny of the universe. A science fiction writer is free to invent any new science he can imagine—so long as his inventions do not contradict what is accepted as scientific fact today.

Thus SF writers can break the speed of light in their stories, despite the apoplectic reaction of most physicists. But if and when those physicists can present incontrovertible evidence (not mathematical treatises) that nothing in the universe can *ever* move faster than light, science fiction writers will begin to live within that constraint.

Most biologists react with equal apoplexy to science fiction stories that deal with human cloning, or

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genetic engineering, or behavioral control such as Huxley described in *Brave New World.* The biologists fear that such SF stories present them as modern-dress Dr. Frankensteins who are tampering with the sacred materials of life itself.

Which, of course, is exactly what they are doing. They have a right to be upset about SF stories that show only the sensational, dangerous, anti-human possibilities of current-day biological research, just as the physicists have become justly sensitive about SF stories depicting mad scientists who want to rule the world by creating new devastating super-nuclear weapons.

As Joe Allred pointed out in his Guest Editorial in our May 1974 issue, the biological sciences have indeed reached the point where the results of research will soon have titanic influences on every human being on this planet. But a simple fear reaction, the kind that says, "There are some things man was not meant to tamper with, Dr. Frankenstein," is not only absurd, it is useless.

Last year, European physicians revealed that several "test-tube" human babies had been born successfully. Fertilized ova had been removed from donor mothers, incubated for a week or so in laboratory apparatus, and then re-implanted in the mothers' wombs. The fetuses developed normally and the babies were born naturally.

Also, a group of biological researchers bypassed the usual channels of scientific communication and called a public press conference to ask for a moratorium on research dealing with artificial genes. Appealing directly to the public (and to the Government: the press conference was held in Washington), they pointed out that research has now reached the point where artificial genetic material can be grafted onto the genes of bacteria, such as *Escherichia coli*, the microscopic guinea pig of most genetic researchers.

E. coli is an ubiquitous little fellow; one of his favorite habitats is the digestive tract of human beings. If the artificially-mutated strains of *E. coli* that have been produced in laboratory experiments should ever get loose, the effect could be strange new diseases for which there is no cure. The scientists called for a halt to such research until adequate safeguards are drawn up and enforced.

So what happened? Most researchers announced they would go along with the moratorium until reasonable safeguards were put into effect. Most, but not all. Some researchers felt that their laboratories were already properly safeguarded, and they weren't going to halt their work because other people might be sloppy. There was no way to enforce the ban; it was strictly self-imposed and self-enforced.

Earlier this year, the biologists announced that they had produced

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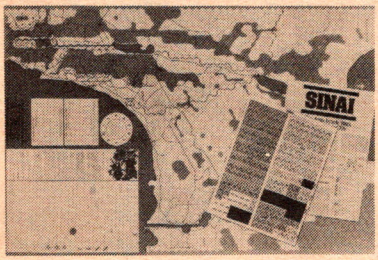

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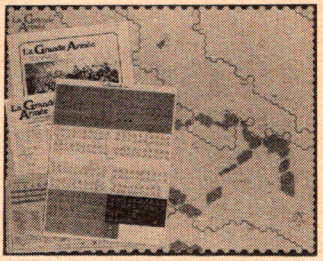

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a satisfactory set of regulations, and research could now go ahead. But the safeguards are *still* self-imposed and self-enforced; the scientific community is attempting to police itself in ways that the nuclear physicists attempted only after Hiroshima. The biologists are trying to prevent their Hiroshima from happening.

Certainly self-regulation by the scientists is preferable to Government regulation, in the view of the scientists themselves. Given the way the Government has handled the nuclear power situation, self-regulation may be infinitely preferable for all concerned.

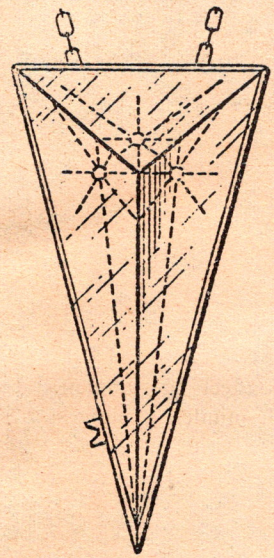
But will it work? And what of all the other results that will be coming out of the biological research labs, and the behavioral research facilities, and the pharmaceutical laboratories? We have only seen the tip of the iceberg, so far; the biological sciences are now the "blue sky" areas of research. The vistas are almost limitless; the prospects for human improvement—and debasement—are staggering.

At this stage of the game, *only* imaginative and well-informed science fiction writers can accurately show the scope of future developments in the biological sciences. And the implications for the future of the human race. The scientists themselves can't do it; they're too close to the subject. The futurologists can't do it; they're constrained to accept only what the scientists tell them. But SF writers can absorb what is known, what is predicted by the experts, and add the "wild card" kind of thinking that goes beyond simple straightline extrapolation.

The biological sciences should be—*must* be—a "blue sky" area for science fiction, too. We need to look squarely and fairly at the possibilities coming out of the biological labs and show the world how they will affect the human race. Not simple-minded cloning stories, in which the writer hasn't the faintest idea of how cloning works and produces something akin to a 1940's Bela Lugosi movie script. Not stories with the moral shortsightedness of a "Do not tamper, Dr. Frankenstein" attitude. We need stories that examine *all* the implications, for good and evil, of current and projected biological research.

Consider: Test-tube babies will never replace the natural method of gestating humans. Really? How about the jet set, who don't want to be encumbered by unsightly pregnancies? Or women who are too physically frail to survive pregnancy and childbirth? Or "generation" type starships? Or in situations where the mother will surrender the child for adoption? Or . . . you get the idea.

Consider: The research on artificial genes that caused all the moratorium fuss has the potential not



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only of producing new human diseases and/or biological weapons. It can also be used to produce incredibly inexpensive medical drugs for healing. Or for making ordinary plants and bacteria nitrogen-fixers, so that our need for fertilizer drops astoundingly. Or for correcting human genetic disorders such as sickle-cell anemia or diabetes or . . . take it from there.

Consider: If we solve our population growth problems and achieve a zero-growth situation at a total world population of, say, four to eight billions, genetic engineering will become *necessary* to the survival of the human race. In a zero-growth situation, the birthrate will be too low to allow normal genetic "competition" to erase genetic defects. The defectives will be born and will survive to breed more defectives. The genetic pool will degrade until there isn't a human being on the planet without defective genes. Genetic engineering can correct those defects when natural selection cannot.

Now consider that the words "defective genes" mean very different things to an Albert Schweitzer and an Adolf Hitler.

It's high time science fiction got busy playing its very important game in this very crucial area of scientific research.

THE EDITOR

STAR PROBE
Part One of Three Parts.
A single stimulus can elicit very
different responses in different people,
even when the stimulus is an alien spacecraft
entering our Solar System.
JOSEPH GREEN
Kelly Freas

From the Master's Thesis scrapbook of Jarl Hentson:

MAN AND SCIENCE COLLIDING?
by Marc Charney
Associated Press Writer

STAMFORD, Conn.—Man and science are on a collision course—and it is Man who will have to change, says the winner of the Nobel Prize for physics, Dr. Dennis Gabor.

"I distrust the nature of Man for very good reason," Gabor said.

"He was made to fight his way out of the forests, but it's doubtful he was made to live in a highly civilized society."

Man's impulses to fight and grow, Gabor says, lead to tremendous problems in an age of science—problems of overpopulation, pollution, destructiveness, and restless boredom if there is too much leisure time.

The way out, he says, is not to eliminate science—but to change Man's motivations. Scientists and educators can work together to turn men toward excellence as a goal instead of more material goods; toward a better quality of life instead of destruction, he added.

Gabor, a seventy-one-year-old native of Hungary who moved to England while Hitler's power was growing, won the 1971 Nobel Prize for inventing holography—a laser beam system for reproducing three-dimensional images without lenses.

But he also has built a reputation in academic circles as a philosophic writer on the implications of science, particularly the problems it poses for society and the solutions it may be able to come up with . . .

Science, he says, has helped create problems of a calamitous order in the Twentieth Century. Gabor says nuclear war probably won't come in this century, but overpopulation and pollution could prove disastrous within a generation.

"Man," he said, "is a fighter, and he's restless. Workers are now bored, dissatisfied . . . It's not starving proletarians who are doing the striking now; they prefer an unpaid holiday, protesting.

"I can't blame them for that—the work they are doing in industry has become too monotonous for their intelligence to take."

The answer, he says, must be a society in which Man's impulses to grow and fight are rechanneled into creative activity that solves social problems.

"The problem is to convince people—particularly young people—to put as much energy in the slowing down of the system as they have into its growth."

—From TODAY
Florida's Space Age Newspaper
May 4, 1972

Chapter 1

Sunday, June 5, 2011

In the middle of the Sunday afternoon movie the holovision well suddenly faded from view.

Harold Hentson glanced up in

annoyance. He had not been watching the three-dimensional figures above the floor projector, but was following the dialog. It kept his mind occupied while he lay sprawled on the resilient rug, patiently correcting Jarl's attempts to insert triangular pegs into round holes on the training board between them.

A new projection formed in the well. It was the life-sized figure of a man, standing before a waist-high newsperson's console. He was looking across its inward-tilted face to his unseen audience.

Harold stared at the lined, serene features of Alfred Murray, chief newscaster for World-Wide News. The old man glanced briefly at his console, then raised his eyes to the world. "We interrupt your regular Sunday programming for a newsflash of extreme interest. The Space Benefits Agency has just released a report from MoonEye, its recently completed observatory on the back of the Moon. At one o'clock this afternoon, astronomers detected an unidentified light about two billion kilometers out in space, between the orbits of Saturn and Uranus. This light is moving with great speed, on the order of eight thousand kilometers a second, and appears headed for Jupiter. While no astronomer we have contacted will commit himself, all agree this is very unlikely to be a natural phenomenon."

Murray relaxed slightly and leaned forward over his console. His deep baritone sank to the confidential rumble in which he reported gossip and rumor, or gave his own opinions. "Fellow world citizens, the scientists know what this puzzling light *must* be; and before long they'll have to admit it! Our own experts tell us nothing but a spaceship could produce a light of that intensity, or move with such tremendous speed. Our Solar System is about to be visited by something—or someone!—from another star system. Unconfirmed sources report that MoonEye has already focused its largest radio telescope on the stranger, and is trying to make contact. Some of the brains at Space Benefits think this must be an unmanned explorer, of the same type they proposed building last year. You may recall the World-Gov Council rejected the idea after extensive debate."

Murray straightened up, and his eyes returned to his hidden console screen. "WWN is staying in constant touch with the Press Office at Space Benefits. We will return with an update as soon as more information becomes available."

The fatherly, trustworthy face faded from view, and the movie returned.

Harold rested on one elbow and ignored the pegboard, lost in thought. The unexpected news was stunning in its implications. A confirmed visitor from another solar system . . . One of the oldest

dreams of Man, contact with another intelligent species, fulfilled at last in 2011 . . . It seemed inappropriate for so important an event to occur during the quiet peace of a Sunday afternoon, while he lay playing training games with his retarded son.

Jarl made a whimpering sound. Harold smiled at the husky nineteen-year-old, reached for the next peg, and handed it to him. The younger man took it and began studying the board with idiot intensity. Harold leaned back and waited, repressing a sigh.

When the movie returned, Jodie Carson touched the remote control by the relaxor and turned off the Tri-D set. She leaned back against the chair's springy but yielding resistance, and it slowly adjusted to the new posture. For once the newsflash had been a genuine surprise, something totally unexpected.

After thinking for a few minutes, Jodie rose from the chair and crossed to the visiphone. She punched out a number, then placed her right hand on the glass in the face of the cabinet beneath. The door popped open. She reached for a small plug-in unit, then looked up at the screen. A familiar face stared impassively back at her.

"Hello! Want to scramble with number three before we talk?"

"Sure." The other woman reached down to open her own cabinet. Jodie inserted her unit in the scrambler slot. The screen dissolved into a patchwork of swirling color patterns, but cleared a few seconds later when the circuit was completed on the other end.

"Strobe, did you catch that newsflash from WWN about five minutes ago?"

"Sure did, Sarcoma. That's a weirdie. Think it's true, or is WorldGyp up to something sneaky—as usual."

"Good question. That's why I called. Will you alert our people at Kennedy and Rockets International, tell them to see what they can learn? I was coming down next Friday for the Hernandez rally, but if this is genuine I'll shuttle down tomorrow. It could hurt us."

"Oh?" asked Strobe, lifting long blonde eyebrows.

"Last year we barely managed to kill that idiot plan to build interstellar space probes. Now if someone has actually sent one to *us*—the idea of returning the message may be hard to fight. And there are too many hungry children in South America for us to let WorldGov burn up still more billions on useless space programs."

"Hadn't thought of that. In fact hadn't thought much about it. Whole thing's kinda weird."

"Call me as soon as you get a confirmation it isn't just a big fakeout. And I'll probably see you tomorrow." Jodie gave the blonde a warm smile as she reached for the scrambler. Strobe was a nothing

in the head, but she had been a good member of the antitechs for many years.

Jodie looked around her apartment. She had been inside for four days, working hard on two stories for FOE, official organ of the New Friends of the Earth Society. She could finish the second one tonight, and leave the manuscripts with the editor tomorrow on the way to the air terminal.

So now the poor tortured Earth was to be visited by a rocket from outer space! Just when they were finally making real progress, actually winning most of the really important battles in the WorldGov Council, the suffering citizens were to be exposed to a new and highly advanced technology.

Or were they? If the visitor was unmanned, an automated probe of the type SB had wanted to build—perhaps it would simply fly by and disappear. And then those who cared about this rotten old world could get on with the business of trying to save it.

Robert Brown appeared in the rec-room door, caught Harold's eye, and waited. Harold nodded slightly. The muscular physical therapist crossed the room and put out a hand to Jarl, who obediently got to his feet. Jarl stood several centimeters taller than Robert, and was in almost as good a condition. The therapist led him to the adjoining exercise room. The door was open, and Harold saw Robert leading Jarl through an opening series of weight-lifting "games."

Harold turned off the holovision, opened the curtains, and stood staring down twelve floors to the ocean. Low, lazy swells were rolling in off the Atlantic, whitecaps breaking above their long green bodies. The beach was crowded, as always in June on a Sunday afternoon.

It had been a bitter disappointment last year when the WorldGov Council turned down the SB proposal to build and launch a series of interstellar probes. The space sciences community had backed the project almost world-wide, but the environmentalists and antitechs had combined to kill it.

And now a probe or spaceship had entered the Solar System. The Earth was on the receiving end of an exploration. So intelligent life elsewhere in the Galaxy was confirmed, and a new era dawned. Man was no longer alone, and the future might hold startling new dangers or undreamed-of promise.

These were large thoughts, but perhaps this was the time for them. And from the practical viewpoint, it was also time to reassess the situation. Could a renewed effort to build Earth's own probes now succeed? And if so, could Rockets International beat the monopoly charges leveled at them last year and get the contract?

Harold realized he was jumping

too far ahead. First it was necessary to learn more about this unexpected visitor, and its intentions.

In his study, Harold closed the door and called Goldstone on RI's private channel. He did not recognize the alert face of the young engineer on the screen, but saw behind him the Operations Room of the Complex. The office force was home on Sunday afternoon.

The engineer obviously recognized Harold; his eyes widened slightly. "Shift supervisor Grant Scott here, sir. May I help you?"

"Hello, Grant; glad to meet you. Did you fellows hear the WWN broadcast on our visitor in the outer Solar System?"

"Yes, sir; we'd gotten it two hours earlier, direct from MoonEye."

Harold cursed mentally, without letting his expression change. This man had no way of knowing what his company president considered important. "What is the Big Dish on just now, Grant? Can we pull it off, say once an hour, and pick up on the visitor for five minutes?"

Grant hesitated, thinking hard. He finally said, "I think so, Hal. Contractually the time is obligated to the Pluto Project, but the spacecraft doesn't require continuous coverage."

"Good. Then please establish a tracking program, and send my office twelve-hour reports. If it isn't broadcasting, try to get velocity and trajectory figures out of MoonEye, and plot us a course. I want to know where it's going and when it will arrive. I'll have Pete Dawson contact your manager tomorrow to make it official. Also—please do this on the side, and keep it quiet."

"Your request is official enough for us, Hal. We'll get started right away."

"Fine, Grant. Then tell the night shift I'd like the first report on my desk in the morning."

"You'll have it," the engineer promised. Harold said good-bye and broke the connection.

Leaning back in his chair, Harold frowned at the ceiling. For the thousandth time since his father had died four years ago, he wished he could ask the old man's opinion. The first Jarl Hentson had founded Rockets International, though he only ran it four years before leaving to become President of the United States. He had been a man with a mind both practical and visionary, an unusual combination of dreamer and doer.

A vague desire that had been nibbling at the edge of Harold's mind for several months suddenly ate its way through. There *was* a way to communicate with his father, providing he was willing to accept a degree of danger to young Jarl. And with the advent of this unexpected visitor in the Solar System, that price no longer seemed too high.

Lily had emerged from her suite, and was watching the movie on the

rec-room holovision set. Harold tried to speak to her, but she lifted a finger for silence. He shrugged, went to his own quarters, and changed into bathing trunks. Ten minutes later he was swimming hard against the incoming waves, working his way out into deep water.

Monday, June 6, 2011

"Hello, Jodie; got something for us?" asked Eugene Jones, dragging his lanky two meters to his large feet. His old-fashioned glass-topped desk was littered, as usual, and he was ignoring the waiting work while reading a sex FacSheet.

Jodie took the two manuscripts from her travel bag and tossed them on the waiting heap. "Gene, someday the rest of the board is going to agree with me that you've got to be replaced. And then maybe we can get an issue of the Bulletin out on time one month."

Jones grinned, large yellow teeth shining through red-bearded lips. He admitted to being lazy and undisciplined. The tall young Harvard dropout was also a brilliant though erratic editor, and one of the few paid professionals on FOE's staff.

In the identity she had established for her reportorial work, that of alternative press writer Jodie Carson, Jodie served on FOE's board of directors. Many people in the organization knew she was also the fiery protest leader Sarcoma. But no one at all knew her real name was Judy Karlson and that her father was the millionaire head of the Karlson Kompany.

"I've often wondered how a woman so petite and pretty on the outside could be so large and tough on the inside," said Jones, the grin vanishing. "I'd also like the address of the Goodwill Store where you buy your clothes. But let's not fight. Instead, why don't you take me to the Holo Light Show tonight in Merritt Park? Peruski has a Trojan War sequence in the programmer that features a twenty-meter Hera doing the Temptation of Zeus. It should be *sextraordinaire.*"

Jodie frowned; she *would* have enjoyed a new Peruski sequence. He was one of the few Light Show artists whose gigantic creations seemed real and alive when they appeared in the air. Holo projection could recreate the gods, and make them believable despite their outsized immaturities.

"I'll be out of town. And while I'm gone, why don't you get your mind off sex and do some work for a change?"

The tall man's flirtatiousness vanished. Jones sat down and picked up her articles. "Don't worry your lovely head over it, little Cancer; I'll get both of these into the next issue."

"Thanks for nothing," said Jodie, and turned and walked out.

The New Friends of the Earth had its headquarters in a delapidated old building on Congress

Avenue in Chelsea. It had been established there after the old California group died of internecine warfare. Most of the prior members had joined the new organization, but a sizable number said the new FOE did not represent their views, and refused. The present FOE had only a few thousand members, but they were all highly dedicated environmentalists.

As Jodie walked the four blocks to the Personal Rapid Transit Station on Park Street, her anger slowly subsided. When the deadline approached, Gene Jones would get to work. His problem was that he seemed unable to take his mind off sex until the need to attend to business was overwhelming.

There was a ten-minute wait for the next PRT car. She spent the time in deep thought. Since Strobe had called earlier and said the visitor was undeniably real, and very likely an unmanned probe, she had been wondering how best to counter the impact on the public. Jesus-Son-of-God-Hentson would surely crank up RI's public relations staff and start a new drive to build interstellar rockets. And that was a program Space Benefits had conservatively estimated at eighty billion dollars and ten years time—all to be shot away into space and forgotten.

Probably the most effective approach would be to turn the technologists' claims around, say the fact that Earth had been found first killed the need to send out messengers of their own. Yes! That idea could be sold. She worried at the thought as she boarded the small white car with three other passengers, found Logan International on the lighted map overhead, and fed the four-digit number into the simple keyboard. When the last passenger punched in her destination, the little car took off, accelerating smoothly up the gentle incline to the twin suspension rails. Almost immediately it turned off Park onto Pearl Street, following the thoroughfare to the McArdle Bridge, where it crossed low over the dirty brown water of the Chelsea River. Then it was down Meridian to Maverick, stopping three times to change passengers, and on to the Logan Station. There she had to switch to the airport bus, which took a small group to the South Terminal. And twenty minutes later she boarded the small Coastal Shuttle feeder jet and strapped in.

With takeoff and landing time included, the subsonic feeder plane took an hour to reach JFK. But the feeders flew only to Shuttle terminals, and her ticket was already punched for Miami. Jodie walked directly from the jet to the Shuttle, and claimed her reserved seat.

The two hydrogen-fueled jets in the tail of the delta-winged Shuttle flared to life. The two-hundred-passenger craft taxied to the runway. Jodie ignored the routine voice of

the host, explaining the life-jacket procedure as a pretty girl fitted one on. A Shuttle sank like a rock if it went down in the water.

The flight over the Atlantic to Miami was uneventful. At almost four thousand kilometers an hour top speed, it was also short. Once, just for the hell of it and to spend Karlson Kompany money, Jodie had ridden a Coastal Shuttle around the full circle. It took a long day. Going south, the first leg was this trip from New York to Miami. Then it was over the Gulf of Mexico to Houston, and through the air corridor across a virtually deserted section of northern Mexico to Guaymas. (The stop in Mexico was the price the USA had paid for the air corridor.) From there the ineradicable sonic boom battered a strip of land across the Baja California peninsula, then went overwater to Los Angeles. After that it was up the Pacific to Seattle, and overwater again to Anchorage. The next leg was over thinly settled northern Alaska, and the icy tundra of the Canadian Northwest Territories. There was a last landing at St. John's in Newfoundland, and then home again to New York. Next day you could fly that route in reverse, if you wished.

In Miami Jodie rented a steamcar at the airport and headed north, via the Everglades Throughway. The new road cut through the heart of the great swamp to the broad shallow waters of Lake Okeechobee, and the sprawling complex of truck farms that surrounded it. Bridges were frequent, to permit a slow but massive flow of water to the south.

Jodie drove slowly, her eyes savoring the vast sweep of wind-rippled water and sawgrass, the occasional hummocks covered with low trees, the tranquil, brooding immensity of this uninhabited land. She always came this way when leaving Miami. The calm and peace of the scene, broken only by heavy traffic on the throughway, invariably refreshed and invigorated her.

But more had been accomplished here than the preservation of beauty. When earlier environmentalists had stopped the relentless southward march of the truck farmers some thirty years back, they had saved the lower peninsula for the eighteen million people who now lived there. From Fort Myers on the west coast to Fort Pierce on the east, the tip of Florida was almost a solid wall of condominiums and apartment buildings. Most were inhabited by elderly people on fixed incomes. The only practical and cheap source of water for such a multitude was the Everglades. But the ancient swamp had been swiftly disappearing down man-made drainage canals, with new farms sprouting on their banks like tropical weeds. That rape of the great natural reservoir had ended; no

new land had felt the plow's bite since 1980.

Jodie wondered how many of the millions eking out their lives in their tall, sun-warmed mausoleums knew of the debt they owed to the old Friends of the Earth. If not for them, Florida would have long ago reached its saturation point. Like most of the world, the retirees probably took the water that flowed into their homes for granted.

But a lack of appreciation and understanding was nothing new for environmentalists. They worked from conviction, not in the expectation of praise. Fortunately, many people realized where their long-term interests lay and supported groups like FOE, whether or not they actively participated.

It was growing dark when Jodie reached Cocoa Beach. Feeling tired, she drove directly to Strobe's apartment. The tall, muscular woman met her at the door, wearing a sympathetic expression and carrying a cold glass of vitagin.

"Welcome, far-traveler! Rest the bottom in a relaxor and I'll tell you the latest. It's good. Jesus Hentson really *does* think he's the Son of God. Only he's got his mythology a little twisted. He wants to bring his old man back, not ascend to join him. Could you believe in the resurrection of Jarl Hentson?"

Jodie could only stare at her hostess as she sank wearily into a chair. "Are you serious, Strobe? How can that be?"

The husky woman smiled. "A little something I knew about, but not enough to spread the word. Jarl Hentson isn't totally gone. Not even death can relieve the world of a US President, these days. His mind has been preserved on tape, and is ready to spring forth at the urging of the mighty computer. And today Harold Hentson called in the company physiologist and asked him how long it would take to bring the old man back."

The door chimes tinkled, and Strobe admitted two of the local FOE group, both young women. Strobe introduced Jodie as Sarcoma, and their eyes widened.

The younger of the two impulsively crossed the room as Jodie rose, and hugged her. Surprised, Jodie allowed the embrace. The second girl, more shy, hesitantly extended a hand. Instead of taking it, Jodie patted her cheek.

"I'm Inez Rogers," said the young one, who could not have been more than eighteen. "And this is Cynthia; Cindy Holcomb. Oh, we've been hearing about you for *years!* . . . but isn't it dangerous for you to come out of hiding? I mean the incitement-to-riot charges and all . . ."

"I'm not wanted in the US," Jodie said, smiling. "Unless we run into some zealous cop who wants to try extraditing me, I'll be fine."

"Cindy works in Jesus Hentson's headquarters computer room," Strobe volunteered. "I asked her to

stop by and tell you what she knows."

Cindy was a thin, fragile girl with delicate features and very long black hair. Inez was a sturdy, freckle-faced redhead. Both were well-dressed, which was a relief to Jodie. No matter how dedicated one might be to the movement, scruffy and smelly compatriots could become tiresome in a hurry.

The new arrivals seated themselves. "What I have to tell really isn't all that much," Cindy began. "Today before lunch Pepi Asturio—he's the company physiologist and an old friend of Hal Hentson's—came in and checked out all the tapes on President Hentson's brain-reading. There was a whole bunch of them, just boxes and boxes. We don't issue the series without a signed order from Mr. Hentson. Pepi didn't have one, so he had us call Hal, and he said to go ahead."

Jodie frowned. "I'm completely lost. How can you bring back a dead man from a bunch of tapes?"

"Well, I'm not a computer engineer, just a programmer, but I know a little about that," Cindy went on, her voice growing more confident. "In 1998 someone came up with a gadget, a kind of improved electroencephalograph, that could read the actual currents flowing through the brain. There are lots and lots of circuits there that are permanently fixed. This machine analyzes all the established paths and produces patterns, in a kind of electronic matrix. It knows to ignore all the muscle controls and autonomic functions, things that just run the body, and concentrate on the memory, the thought centers, and the info you have stored in the cortex on the frontal lobes. The computer has to tape all this in a linear form, but you can play it back into a big machine's memory banks, actuate all the circuits at once, and produce something they call a 'persona,' a kind of simulation of the original brain. It's terribly expensive, and ties up a computer for several days, so it doesn't get done very often. RI has the tapes only because Hal insisted the Government make him an extra set when they read old Jarl Hentson's brain."

"I wonder why we haven't heard more about this?" Jodie asked, her voice thoughtful.

"It takes months to do that original reading," Cindy answered. "And the US and WorldGov haven't publicized it because too many people are conceited enough to think their memories and thought patterns should be preserved for future generations. I've heard that the US President before Jarl was the first to be brain-read. Since then it's spread, including the last two WorldGov Premiers, a few famous scientists, and so on."

"That's certainly very interesting news," Jodie said. "Look, do we have anyone—not necessarily an antitech member, just a friend—who

works with the RI computer? We should try to keep an eye on its schedule, learn what Asturio's assignment is."

"We can do that," said Cindy. "There's a girl in Pepi's lab I bowl with who'll tell me. But why would Hal want to bring his father back?"

"I don't know," Jodie admitted. "But let me remind you, before Jarl Hentson formed Rockets International he was a highly experienced astronaut. The first man on Mars, and all that. Maybe Jesus Hentson wants to consult with his father about this probe."

"Find out what you can and come back tomorrow night," Jodie went on, rising. "I'm glad to have met both of you—and perhaps we'll be working together before the week is over. Now I've got to drag it off to rest, or collapse right in front of you."

She was not really that tired, but felt a need to be alone to think. Harold Hentson had to be up to something—but what? In any case, you could bet it would be for the benefit of RI and technology, and against the welfare of the average citizen. And somehow it connected with this strange visitor from outer space. It was a good thing she had caught that newsflash and hurried down here.

Chapter 2

Tuesday, June 7, 2011

"Hal, here's the latest tracking data and analysis from Goldstone."

Harold glanced up from his cluttered desk. He took the sheaf of paper from Pat Pajick, his executive assistant. "Did the fellows who ran this know to keep it quiet?"

"Per your instructions, our manager at Goldstone was told to hide this work in his budget. Space Benefits doesn't know, and officially it doesn't exist."

"Fine; thanks, Pat. Now call Raoul Stone and build a fire under him to get that weight/acceleration trade-off study finished. I want it ready by staff meeting time tomorrow."

Pat raised carefully-plucked eyebrows. "Raoul just called me with a status report. He has about two days work left. If you want this ready by nine tomorrow, he and his team will have to work all night."

Harold hesitated. That was a rough requirement to lay on his engineering staff—especially when he had no certainty the information would be used.

"Hal, the noon news will be on in a minute. The expectation among the news-hawks is that the WP will announce WorldGov's decision in regard to the probe." Pat hesitated, a troubled look on his smooth young face. But when he resumed, his soft baritone was calm and well-modulated, as always. Pat had never been known to raise his voice in anger or impatience. "May I suggest we catch the broadcast before you decide?"

"Yes you may," Harold said, touching the button that caused a Tri-D screen to rotate out of the desk surface into the upright position. Harold switched to the commercial news channel as the screen brightened. Pat drew up a chair without waiting to be asked.

Harold had gone through three assistants trying to find a suitable one. He had first noticed Pat Pajick in the Contracts Department, where he had risen very rapidly to manager's assistant—then stalled for three years. Pat was a brilliant man, but had little force or drive. He was destined to operate always in the shadow of a stronger personality, where the necessary head-on confrontations could be endured by someone of tougher fiber. A genuine argument literally demoralized Pat Pajick for several days. Therefore he never argued.

The screen swirled in a riot of blending colors, then cleared. It was a commercial. Harold flicked the sound down, and watched impatiently as some determinedly happy adolescents romped through the gawdy attractions of TeenTown, USA. Then the calm and dignified face of Alfred Murray looked out at them, and Harold turned the sound back up. He could not endure hearing commercials. Thank the stars Rockets International, which did not sell to the general public, advertised only in the technical FacSheets.

"The big news of the day so far is the decision of WorldGov not to intercept the probe," Murray announced in his soothing rumble. "Yes, the emergency session just concluded accepted the recommendation prepared by World Premier Hsi Wu and his staff. The WP reasoning, in short, is that when dealing with the totally unknown it is safest to take no action at all. Another good reason is that this would be a suicide mission if we *did* send out an astronaut. Some preliminary calculations by the people at MoonEye indicate we could probably rendezvous with the probe, but there would be no power left for the return trip. No one in the Government is suggesting we make such a sacrifice. The scientific community feels certain the probe is only a complex unmanned spacecraft, of the kind WorldGov has considered sending out—but so far been unable to afford. The suggestion by Conservative Party Chairman Phillips that we meet it in space with two or three fusion bombs has been rejected. While no one thinks it will take hostile action against us on its own, quite a few people feel it may have defensive weapons—and no one wants to see them used. The astronomers are busy focusing every available radio and optical telescope on the probe, to learn what they can while it's with us."

Murray moved on to the next item, and Harold turned off the set. He felt a little sick, even though

the decision was expected. When the potential dangers and gains were equally unknown the Government always took the course of least resistance.

"I'll tell Raoul to keep his people over tonight and finish that study," Pat said as he headed for the door.

Harold nodded, and picked up the smuggled report from Goldstone. RI operated the old facility under a management contract from Space Benefits. The World Premier and his people had examined similar data and considered meeting the probe with bombs, which was easy enough to do—but had they studied the more difficult idea of capturing it?

Harold did not think so.

But Harold Hentson, president and major stockholder of Rockets International, could at least satisfy his curiosity. The question of whether it was technically feasible to attempt a capture of the probe had occurred to him Monday, when it seemed established that the visitor was unmanned. He had immediately asked his VP for Research and Development Engineering to determine the maximum velocity the largest RI rocket could attain with a small payload.

Harold glanced briefly through the thick computer runoff from Goldstone, and settled for the analysis. This was the third one since he had asked for twelve-hour reports. There was nothing new, but the uncertainty factor had fallen sharply, down twenty percent since the last one. The probe was still steadily decelerating. The change that had upped the analysts' confidence was a small course correction. This had placed the visitor in the exact path needed to lose the maximum possible velocity while swinging around Jupiter, providing the next target was Earth. It was now down to one-hundredth light-speed. Assuming the known rate of deceleration continued until encounter, it would pass Earth at a speed of less than four hundred miles per second.

Harold saw with wry amusement that someone had carefully translated the figure into kilometers-per-hour for him: 2.3 million. The fact he was not a physicist like his illustrious father was well known at Rockets International.

After separating the summary, Harold tossed the rest of the paper into his reclaimer. The parts were falling in place. If the staff meeting in the morning produced the answers he expected, he was going to be confronted with the most important decision of his career.

Harold was accustomed to tough decisions; he made them every day. But a wrong one here could cost him his job, and he enjoyed being president of RI too much to take risks lightly. Yet the potential here was so great it was worth a gamble against high odds. This might be one of those times when only the

boldest action could succeed, when anything less meant certain failure. And though no one but himself would know it, he would be haunted for the rest of his life if he failed this chance through lack of nerve.

One vital item still missing was an astronaut willing to bet his life on what was probably a suicide mission. The preliminary information available to Harold indicated the odds were heavily against a safe return home—if there was any point in going at all.

Harold called Pat in and gave him the task of finding a willing astronaut by meeting time Wednesday. He authorized a payment that made Pat's eyebrows lift again.

Harold's visicom trilled, but before he could answer it Pepi Asturio walked in unannounced. The short and pudgy physiologist hurried to the desk and laid a thin blue notebook on the highest stack of paper. Pepi could ignore the secretaries outside because he was a personal friend. He was smiling broadly, white teeth flashing against his darkly olive skin. "Hal, we can do it! Give us young Jarl tomorrow, and Friday you can talk to your father again—or at least a pretty complete reincarnation of him."

Harold pushed back, stood up, and stretched. Cramped muscles cracked and popped with the effort. "OK, Pepi. Set it up to get started tomorrow, immediately after the nine o'clock staff meeting. I'll bring Jarl in with me in the morning."

Pepi gave him a slightly puzzled look. "Hal—you realize we don't know how the imprinting will work on a long-term basis. This has never been done except with a computer analog of the brain. And that isn't, and can't be, a complete simulation. I think the probability is high that the patterns will fade after a few weeks."

"Pepi, my best guess is that two weeks will be enough time—if we go through with this at all. We'll know more after tomorrow."

Pepi nodded and left. Harold picked up the blue notebook and read as he ate lunch. Knowing his president's penchant for short summaries, Pepi had handwritten his results and compiled them at the rear. What the study proved, in essence, was that the complete persona stored on reel after reel of tape could be imprinted on a human brain in three days time. How effective the transfer would be, no one could say.

The original intent of brain-reading was to store the mental patterns of valuable individuals in as complete a form as possible. But the previous US President, Arnold H. Zimmerman, had been resurrected in a computer two years ago, and asked for his advice. The artificial personality had produced an answer—which was then ignored by the WorldGov Council.

Pepi was certain the imprinting could be performed on a human brain, and result in a better simulation than that afforded by the computer. Even the largest machine did not have the number of circuits available in the human cortex. If it had been done in practice, though, the results had not been announced.

But bringing his father back, valuable though that keen and experienced mind could be, was not Harold's most pressing problem. The need for an experienced astronaut was the weak link in the chain he was forging, the one most likely to pull apart. He had one more expedient available if no one volunteered, but it was a desperate, last-gasp answer, not to be attempted until all else failed.

At present Harold was trying to hold open all options, analyze all possibilities. He had been president of RI for seven years now, becoming at thirty-four the youngest man to hold the post. (Even Jarl Hentson had been forty-five when he assumed the presidency of the predecessor company and changed its name.) And the one management technique he had had pounded into his head, time and again, was to look down all possible roads before choosing one—and if necessary, build a new road!

Harold stepped outside his office, into the large reception room shared by Pat Pajick and two secretaries. He waited until Pat finished the current call, then asked, "What do you think the odds are?"

Pat turned in his chair. "About a thousand to one. And there are only seventy astronauts qualified to fly the Big Bird."

"Keep trying. Do you mind staying over tonight and seeing if you can reach a few at home? I'd like the count to be as complete as possible."

"Sure, I'll stay. But if I reach half, and they all flatly say no . . ." Pat shrugged, and turned back to his visiphone.

Harold had no trouble completing the unspoken thought. *The second half would say no also!* You had to be crazy to volunteer for a suicide mission where the chances for success were minimal—and an insane astronaut was almost a contradiction in terms. Their mental health was as rigorously checked as the physical.

Harold had kept his morning schedule clear of appointments, but the afternoon had to be devoted to running Rockets International. The day passed swiftly as he attended to routine business, and he left for home at four o'clock. Pat was still patiently, doggedly running down the list of seventy astronauts, repeating RI's offer of a million dollars in American money to any volunteer. So far no one had even seriously considered it.

The bright Florida sun was beaming down on the roof of the RI Executive Tower. While he

waited with a growing crowd for the aircar, Harold glanced over the flat countryside toward the Atlantic, almost ten kilometers to the east. He could make out the tops of the condominiums lining the ocean along New Smyrna Beach, including the one built by RI where many executives lived. The Hentsons resided a kilometer to the south, in an older but more elegant structure.

The next aircar landed and Harold hurried aboard, jostling elbows with other headquarters personnel who were going east. One of his first acts as president had been to abolish the private aircar RI executives had been using for years. The act had not gained him any popularity with his associates.

The distance was short to the first stop in New Smyrna, but the automated aircar landed on every tenth tower. Harold was drawn into conversation with two pretty personnel specialists who were interested in his opinion of the probe. That seemed the universal topic since the announcement from MoonEye Sunday afternoon.

"Hal, did you hear that WorldGov has announced they're going to just let the probe go by without trying to destroy it?" asked the younger of the two, a slim and willowy girl dressed rather modestly in a white stretch-skin suit.

Harold nodded. He hadn't met either woman, but it was a common custom at RI to call him Hal.

"Well, don't you think that's the sensible thing to do?" asked the second woman, who was apparently trying to make an impression on the boss while she had the chance.

"I'd rather hear your opinions than give mine," Harold answered them both.

The older woman nodded. "I've heard you were like that, Hal, that you had rather listen than talk. But that isn't fair! Your information is certainly better than ours."

Harold had to agree. "Sorry; you're right. OK, it's my opinion that WorldGov should make every possible effort to *capture* the probe. The technological gains from being able to study an interstellar rocket should be enormous."

The willowy one opened large eyes even wider. "Oh, I *agree* with you! I said that during break this afternoon, and everyone thought I was off my rocket. Wait till I tell them tomorrow!"

"Guess I lost that round," said her friend, with a trace of impish humor. The truth was not going to impress the boss. "Wanda *did* say that, and she was about the only one. The rest of us felt trying to capture it might be dangerous. What if it has some sort of death-ray, with maybe orders to defend itself? For all we know it could wipe out the Earth!"

Harold's stop saved him from having to answer. He said good-bye and hurried to the express elevator, rode down twenty floors to the

street, and walked the last few hundred meters to his building. On the twelfth and last floor he pressed his right hand on the glass admittance panel, and stepped inside when the door swung open. The Hentsons occupied the entire top of the building.

Lily hurried in from the kitchen. "Hal! You're home early. Get out of your clothes and I'll bring you a drink."

Lily Brewster Hentson was a tall, regal woman with silvery hair and a figure just tending toward plumpness. She came from a family that had been rich since the American Civil War. They had met at World U, and married in Harold's freshman year. Lily had dropped out to have young Jarl, and never returned. It was one of the several things she held against her husband.

"Thanks, darling. And then stick around, please. We have to talk."

Lily gave him a slightly puzzled look, but nodded. They had very little to talk about these days.

As he changed into a loose one-piece lounging outfit Harold found himself wondering for the thousandth time why he had not terminated the contract with Lily. She had enough money to be independent. They hadn't shared sex in more years than he could remember, and their lives had diverged sharply since the birth of Jarl Hentson the Second.

And perhaps that was the answer. Lily had steadfastly refused to have another child, out of fear the unknown malady might strike again. Instead she devoted all her time to young Jarl. For at least seventeen years now it had been painfully obvious he was not going to grow mentally, that he would always hover somewhere on the dim border of extreme retardation. But Lily had refused to acknowledge that their son would always be a mental baby, although he still had to have help feeding himself. At least he had finally been toilet-trained, after several painful years.

At first Lily had worked with the full-time therapist and nurse for long hours, exercising her son's healthy body and trying every known technique to force the crippled mind to grow. She had pointed out each slow bit of progress to Hal, claiming eventual triumph. Over the years the claims had gradually died away. Now they seldom discussed their son. The nurse had long since vanished, but the physical therapist remained, a permanent part of the Hentson family. He had his own quarters both in the condominium and in the country home in the Great Smoky Mountains of North Carolina.

Harold had never had the nerve to tell Lily her slavish devotion to young Jarl was a form of self-indulgence, a withdrawal from all challenges except that one. She had been failing in school when she

withdrew. Lily simply did not like to study. Money had insulated her from all turmoil, every common form of struggle. At a certain point she had stopped trying to grow, accepting herself as she was. As an adult Lily was a compliant, undemanding woman, easy to live with but dull company. And over the past few years she had spent less and less time with their son, tacitly accepting that he too had reached his limit. Most of her daylight hours were passed watching holovision, where she enjoyed many lives—all once removed from the hard jars of reality.

Lily returned with Harold's favorite drink, an exotic concoction of fruit juices flavored lightly with rum, and seated herself on the divan before the glass wall. Harold moved to join her. Outside and below, the beach looked cool where the westering sun threw the shadows of the row of buildings across the white Florida sand. A crowd of bathers, most from the condominiums but also vacationers and tourists, enjoyed the mandatory hundred meters of beach between buildings and water. Modest bathing attire was back in custom at the moment, and all the men and women Harold could see wore one-piece suits of brightly colored stretch-skin. It was a pleasant, serene view, just the kind Lily enjoyed. She never walked on that hundred meters of beach herself, but often watched the crowd.

"Hon, do you remember a few months back when I mentioned the possibility of creating a computer persona of my father? And I said, just in joke, that it would be nice if we could create the old Jarl in the young Jarl's head, since it isn't being really used now."

Lily immediately looked defensive. "Of course. And I said Jarl may not have much intelligence of the type you measure in tests, but he's a very sweet and nice boy, and you shouldn't joke about things like that."

"Yes, you did. Well, I *was* joking, at the time. But now we've learned it may really be possible to do exactly that. A great deal of new information on brain-reading and imprinting is available now, and it seems it's quite practical to plant a computer persona in a human brain. I want to try it with Jarl, Lily. It can't hurt him—and Pepi tells me we should get a much more complete personality than we could create by using a computer."

Lily went from defensive to alarmed. "Hal! You can't be serious! Why, how could you even *consider* letting someone tamper with Jarl's poor damaged brain? Absolutely not! I forbid it!"

"I could consider it because the effect is temporary. Jarl will be himself again in three or four weeks. He will be perfectly safe, there is no danger, and it might even be good for him."

Lily seldom argued with her hus-

band. She accepted the fact that she was no match for Harold in a contest of wills. But though her interest in improving young Jarl's condition had waned, the protective feeling was still strong. "You just said all this is new. You can't be absolutely certain it won't hurt Jarl, no matter what Pepi says. No, Hal; you leave my son alone."

"He's my son too," Harold said, his voice very low.

"No! no! no! no!" Lily said very rapidly, and started crying.

Harold leaned back, relaxed, and waited. After five minutes he started slowly and patiently repeating that the treatment wouldn't hurt Jarl, it would be temporary anyway, and it was desperately important that the senior Jarl Hentson be restored long enough to help Harold with a serious problem. Lily continued to shake her head, though the weeping eased. Harold assured her over and over that he would never do anything to hurt their son, that her fears were groundless, and added that this might be Jarl's one chance to make a genuine contribution to the Hentson family.

And after a long two hours of argument, tears, and near-hysteria on Lily's part, she gave in, as both had known she would from the beginning.

Chapter 3

Tuesday, June 7, 2011

While Strobe was at work Tuesday Jodie spent the day on the visiphone, primarily gathering information. She also got commitments from the local leaders of several antitech groups in the Orlando area. If bodies were needed, they would be available. A demonstration could be arranged anywhere in central Florida, almost on demand.

Cindy Holcomb came over after dinner, face alight with excitement. "Sarcoma, you won't *believe* this! Pepi Asturio reserved the engineering computer for tomorrow through Friday—and the lab techs are converting a brain-reading cap to work the other way! After work I called Robert Brown—he's the physical therapist for the Hentson's retarded son—and Robert said he has orders to gather enough clothes and things to last the boy for three weeks! He'll be staying in the RI laboratory."

"My God!" Jodie said softly. "He's going to bring his father back by using his son's brain!"

"It's the only thing that makes sense!" Cindy went on, still excited. "And I have another hot story. One of the girls who delivers mail to Hal's office heard his assistant, that weird jellyman Pat Pajick, talking to several astronauts this afternoon. He was offering each one a million dollars to intercept the probe, and explaining that it would probably be a suicide mission. Of course, he isn't getting any takers."

"Far up and out!" muttered Strobe.

"Even if RI does find an astronaut willing to try it, WorldGov has just made a decision not to interfere with the probe," said Jodie, thinking aloud. "I don't see how even Jesus Hentson can buck that. Let's wait it out a few days, while keeping a close eye on RI."

"You don't know Hal Hentson," said Cindy, her voice firm. "If he decides to go after the probe, SB and WorldGov and all the rest won't stop him. And I don't understand why we should, either. What harm will capturing the probe do to the Earth's ecology?"

Jodie gave her an amused look. "Nothing, directly. But don't you realize the aerospace lobby would immediately start clamoring to build an armada just like it? Think of how many people that would tie up in the totally useless project of shooting a bunch of rockets off into the Galaxy! We've already wasted a tremendous amount of human time and energy sending unmanned spaceships to Uranus and Pluto, and the rest of the planets. What has it all gotten us? Absolutely nothing! For that matter, the entire space program has always been just one long gravy train for aerospace companies and fat-assed Government bureaucrats. I say it's long past time we started devoting our energy to improving the Earth we live on! Think what we could have accomplished with all those billions of dollars!"

Jodie had automatically moved into the raised voice and emphatic statements of the practiced orator. Cindy was looking at her rather oddly. Jodie laughed, and relaxed. "Pardon me for getting carried away, Cindy. It's just that I've fought the space waste so long the idea of seeing it get even larger sets me off. Believe me, any impartial analysis of the space program will show the costs to be huge and the return small. Going to the Moon in the first place was just a national prestige thing. We can't afford such 'prestige' today."

Cindy nodded, though she did not seem entirely convinced.

Wednesday, June 8, 2011

"OK, Raoul, let's have it," Harold Hentson said to open the meeting at 9:01. Each of the eight persons around the table had a cup of hot stimcaf at hand, and vitabread was available in small plates.

Raoul Stone looked tired—he and his team of top engineers had worked through the night, as expected—but his voice was firm and clear. "We can do it, Hal, but just barely. With a small load—like one person and his life-support—we can pull a steady three G's out of a Big Bird for close to twenty-two hours. If the Goldstone analysis holds up, we'll need less than eighteen for the intercept. That leaves you four hours to play with, for contact and a trajectory change for both. Not having the exact mass of the probe, we can't give a definitive answer on

whether it will be enough. Our best guess is yes."

Harold nodded, and looked across the table at Carson Jamison, VP for production. "If I give you the go-ahead now, can you have the cargo out of that vehicle and convert over to a single pilot launch in eighty hours? Requirements are full ground control, and life-support for a minimum of six weeks for that one man. Also, we'll have to build some sort of attach fitting for the nose."

Jamison thought it over for several seconds. Finally he said, "Close; a little too close. Give me eighty-eight hours."

Harold knew Carson Jamison was a cautious man. He had probably estimated he could do it in sixty-five or seventy hours. Ground control was built in, and only required activation. Removing the folded parts of the Space Station, still under assembly in unoccupied areas, was a routine operation. The huge double tank which formed the bulk of the vehicle could be filled with liquid hydrogen and oxygen in a few hours. These were intended for in-orbit refueling of the Lunar Shuttle and the Lunar Lander. But the single huge engine that powered the vehicle also drew on the propellants in those tanks, and could do so until they were empty.

"Can we live with that, Pete?" Harold asked next.

Peter Dawson was VP of the Tracking and Control Division, in constant touch with his personnel manning Goldstone. He was a lean, skeptical man of sixty, accustomed to dealing with the unyielding realities of celestial mechanics. He touched long smooth fingers together and gave a carefully studied answer. "Hal, we are dealing with two major assumptions here, neither of them verifiably true. First, we are assuming the probe will stop its engines some predetermined distance from Jupiter—we're working with ten radii—to minimize interference with the instruments during the actual fly-by. It would do the same again at Earth. Second, we assume the probe will use this planet to regain some of the velocity it's shedding, and do the same with Saturn on its way out of the Solar System. The present line-up of the three does make this possible, and so far the probe has behaved exactly as a computer-directed explorer would—picking a flight path that utilizes planetary gravity and motion to conserve its own fuel supply. Now if the engines stop and start exactly on schedule—and it seems safe to assume their thrust is an invariable—we can plot an intercept point between here and Saturn where we can match velocities with it. But we have to launch eleven hours before it reaches Earth, and we have no assurance that it *will* swing off toward Saturn. As for the answer to your specific question—eighty-eight hours is running down

to the wire. The Jupiter encounter starts in a few minutes, and we plot it at 114 hours after that before it reaches Earth."

Harold nodded. "Thank you, Pete. Carson, we will have to better that figure. Let's try for seventy-five hours. And for the rest of this discussion, let's postulate that the probe will behave exactly as Pete said. Pat, please report on the search for a pilot."

Pat Pajick cleared his throat. He did not enjoy speaking before this group of strong-minded executives. "Hal, I have contacted fifty-six of the seventy qualified astronauts. Not a single one seriously considered our offer. Most were simply unwilling to go against the decision by WorldGov. The rest declined when they learned the odds were high against returning alive."

Harold nodded. "Sensible people all. Very well. Let's consider the alternative of an *unqualified* pilot. If we go to a primarily ground-control-mission format, leaving only the actual rendezvous maneuvers up to the man on board—Alonzo, can your training section prepare, say, a light plane pilot to handle that rendezvous? Assume sixteen hours a day of hard work, and unlimited use of the RI triple-trainer for the next three days."

Alonzo Swain, the RI launch operations superintendent and a former astronaut, bowed his gray-haired head in thought. He lifted it to say, "Possible, Hal, but highly doubtful. The controls aren't that complicated, but . . . there's a certain *feel* to operating under zero G, or three G's, that you only get through practice. I wouldn't send an aircraft pilot out there except as a last resort."

"Just a minute, Hal. There's something I'd like to get clear in my head." The speaker was Lambert Dawes, the company controller. He was a frail, thin wisp of a man, nearing retirement and not afraid of anyone, including Harold Hentson. "If I've followed Raoul and Pete correctly, it will take eighteen hours of acceleration to match the probe's velocity. You have a total fuel supply of twenty-two hours. How is the pilot—and the probe, assuming he takes charge of it—supposed to get back to Earth?"

Harold nodded at Dawson, who again touched his fingers together and stared at them intently as he spoke. "Lambert, assuming our pilot can disable the probe's engines, in effect turning it into an inert body—Raoul and I estimate four hours of deceleration can throw it into a close pass around the Sun. We can plot the angle of application in real time, and try to guide it back to Earth. The second pass would be in about two weeks. At that time it would be necessary to meet it with probably one more Big Bird, and slow it enough to allow capture by Earth's gravity."

Dawes looked astonished. "But—if you're going close to the Sun the

heat inside will be tremendous! You can't build a shield against that in four days! This mission isn't dangerous—it's suicide!"

"Not necessarily," Harold disagreed. "The calculations aren't that firm. Three hours of deceleration may be enough. If so, the one hour you have left would be sufficient to move the Big Bird out to a safer distance. Remember, with most of its cargo of propellants gone it becomes a relatively light vehicle, while engine thrust remains the same."

"That isn't much hope for a man you're asking to risk his life," said Swain.

"There's also the unknown factor, Alonzo," Harold went on. "We don't really know what a man can accomplish until he's *there!* Possibly it will be nothing. It is also possible he may be able to get aboard and learn to fly it . . ."

Alonzo Swain nodded—but it was obvious he agreed with the fifty-six astronauts who felt the risk was too great.

"Hal, have you considered the legal aspects of attempting this mission?" The speaker was Fred Buck, the company counsel. "Taking a rocket contracted to SB, and using it in an attempt to contravene a WorldGov decision, will bring down so much wrath on our heads the company may not survive. Are you quite sure you want to risk this?"

Harold looked around the table. "Does anyone else have reservations, assuming we decide this mission is technically feasible?"

"Yes, I have a major one." The only woman at the table rose to her feet. She was Maria Schnider, the employees' representative. RI was forty-nine percent owned by the people who worked for it. Maria was a production worker, but she attended every staff and board of directors' meeting. "I don't understand why we are even considering this idea. If WorldGov and Space Benefits don't believe we should interfere with the probe, why is RI thinking of doing so? What can we possibly hope to gain that would make you willing to risk putting RI right out of business?"

"Would you like to answer that one, Will?"

Wilhelm Wundt was the head of RI's small but highly competent Research Laboratory. On the organization chart Pepi Asturio worked for Wilhelm; actually his work was independent from that of the main group.

Wundt was a spare, gray-haired old man who moved in quick birdlike jerks and darts. His mind was diametrically opposed, being slow and deep. He had a broad, encompassing grasp across the whole spectrum of physics. He seldom spoke at staff meetings unless called upon.

"If you wish, Hal. Let me begin with what we know. MoonEye has furnished an estimate of the size of

this strange craft. They calculate it at less than a hundred meters in length, half that of our largest cargo rocket. Such a small vehicle requires a power source far beyond anything we have today. It appears to use two phased-pulse nuclear engines, each producing a relatively small thrust. These engines have been burning for three days now, and will apparently continue to burn while it is in our Solar System; first losing speed, then gaining it back. Spectroscopic analysis of the blue light reveals alpha particles and traces of nitrogen. It seems obvious its builders have mastered the technique of fusing a free alpha particle with nitrogen-15, which then fissions into four helium nuclei. This fusion-fission cycle produces thrust when contained in a rocket nozzle. The amount can be precisely controlled. And, of course, a single kilogram of nitrogen yields a tremendous amount of energy, far more than we can obtain from equivalent deuterium-tritium fusion. As you know, nitrogen is plentiful and cheap. Also, the reaction is a very clean one, the even division of the nitrogen-16 nucleus into four helium-4 nuclei yielding very few radioactive by-products. Now as to why this produces such a huge blue flame—theory indicates it shouldn't. Further study is required."

Wundt had plainly lost most of his audience. Harold repressed a grin, and said, "Suffice it to say that if we capture the probe, the first application of new knowledge will be directly in RI's line of business. But that's just the start. This new source of cheap nuclear energy could revolutionize world power production. And what could we learn from the decision-making computer that is obviously directing the probe? How much would it advance our studies in machine intelligence? What could we learn from understanding and using the ship's sensing instruments? Its analyzing machinery? It seems rather obvious that if we capture the probe our patent licensing division will become the biggest money-maker we have!"

"What makes you think World-Gov would let us keep the probe if we *did* the incredible and captured it?" asked Maria.

"They probably wouldn't," Fred Buck suddenly spoke up. "But if we took possession and filed a legal claim for salvage, we'd have an excellent case. I'm sure we could work out some compromise that would allow us first crack at the technology."

A messenger entered the conference room and hurried to Peter Dawson's chair. The tracking VP scanned the note and stood up, suppressed excitement on his face. "Good news! The probe stopped its engines precisely ten radii from Jupiter. I believe you can now accept our projected flight path as a fact, not a postulate."

Harold rose as Dawson sat down to a small buzz of conversation. "Thank you, Pete; glad you had that confirmation rushed in here. I'll try to make the rest of this brief. I am convinced that if we succeed in capturing the probe, Rockets International will benefit more than we can possibly imagine. And someone has to make the effort. If it's left up to WorldGov, a source of potential knowledge greater than any we have ever known will totally escape us. I think the project is well worth the financial risk to RI. As for the human life involved—the risks there are solely up to me, since I am going to be the pilot. We will proceed as outlined. Please return here again tomorrow morning with progress reports."

Harold turned and walked out of the conference room.

Harold's office door had barely closed behind him when it opened again. Pepi, Alonzo, and Pete Dawson hurried in. Harold heaved an inner sigh, and turned to confront the inevitable. These three were his personal friends as well as fellow employees. He could not simply tell them his decision was his business, and send them on their way.

Alonzo spoke first. "Hal, did I ever tell you I think you're a goddamned idiot?"

"You're fired," Harold said pleasantly.

"Kiss my foot. I can get another job. Now listen to me. There is no point whatever in you flying this mission. You couldn't handle the rendezvous when you got there. If you are dead set on this, if it absolutely must be done, then I'll go."

"And how do I explain to Peggy and that brood of kids—five with the latest, isn't it?—what happened if you *don't* get back? No thanks, Al. If we can't get a qualified pilot, then the only person I'm willing to risk is myself. And why are you so sure I can't do it? I have almost four hundred hours in light aircraft. You'll be here to guide me. And if the imprint works as well as Pepi expects, so will the first Jarl."

"It won't work, Hal." Pete Dawson's voice was calm but firm. "Even assuming my boys could get you to the rendezvous point by ground control, you'd still have to do all the close maneuvering. At encounter we'll have a transmission time of several minutes. There is no way anyone here could help or advise you."

"Then I'll train as intensively as I can for the next three days, and manage without you," Harold said cheerfully.

Dawson's face was somber. "Hal—how much of this fanatical determination stems from the fact you always wanted to be an astronaut? Now don't bother to fire me—I just resigned, and I *will* speak my mind! We all know you flunked out of the Astronaut Academy because you couldn't handle the math. We know you worship-

ped your father because he was the first man on Mars, not because he served a term as President of the US. I ask you to examine your own motivations very carefully—and if you still think you are making a sensible decision, then I'll withdraw my objections."

Pete Dawson's cool logic was utterly convincing, as always. Harold felt something inside himself shrivel and die. He had not actually explored his internal feelings after it became obvious the pilot was unlikely to return alive. Going himself had seemed the obvious thing to do. Now he realized it was a grandiose scheme, doomed to failure by his own inadequacies.

"There may be another way," Pepi said into the sudden silence.

The other three men turned to stare at him. "I know one highly experienced astronaut who would certainly volunteer," Pepi went on. "We can ask him Friday. Jarl Hentson should be fully with us by then."

There was a moment of shocked quiet. An automatic *NO!* rose in Harold's throat; he choked it back. If the imprinting took as well as Pepi expected, if the extensive knowledge and pilot skills transferred over to the blank young mind . . . then sending Jarl might be the one workable solution open to them.

An image of young Jarl's face rose in Harold's mind. He loved his son, in the way one loves a helpless baby. Jarl had no intelligence, but he did possess some traces of personality, as his mother had pointed out. He was gentle, friendly, and dependent. But that which was cute and lovable in a baby seemed inappropriate in a husky nineteen-year-old.

Even assuming Pepi's confidence was justified, and the persona of the first Jarl agreed to go—could he really sacrifice his son this way? What kind of man was he, Harold Hentson, to even contemplate such an act?

The answer, when it came, was from somewhere deep inside, springing from the very fiber and essence of his being. He had his own vision of what Mankind's goals should be, an older belief that went back to the last century. It was that Man had to keep striving, moving ever outward, or perish. It was more than the frontier spirit, above and beyond the need for challenge and growth. To stop was to degenerate.

Opposition to this point of view was plentiful. Since the first ecology movements of the 1960's, the first revolts against the philosophy of continual growth, a disbelief in science and technology had grown and swelled, to become a mighty force in the world. In 2011 every major technical advance was opposed by some group or other, with the result that many never went into effect.

Harold's particular interest in life

was the space program. He had failed to become an astronaut despite his best efforts. Fate had then made him president of the world's largest aerospace company, rather than working directly for the Government. And over the years, as familiarity bred a growing and deepening contempt for Government bureaucracy, he had been glad it worked out that way.

Ultimately, any person acted according to his beliefs. And he believed with total sincerity it was vital to the future of Mankind that this probe be captured, and its secrets revealed. He would gladly keep that rendezvous in space himself, if he could make the mission a success. Since he could not, would he sacrifice his son—and with him, the persona of his father?

Harold looked deep inside himself, trembling on the verge of a decision the consequences of which could hurt him for the rest of his life. If Jarl died—if that death came as a wasted effort—could Hal Hentson live with himself afterward?

That one he could answer. The thought of his son dying in a useless cause was unbearable, unacceptable—but if Jarl succeeded in this strange mission, returned the probe to Earth and died a hero—that he could live with.

Harold could not clarify in his own mind why success or failure should ease or torment his conscience—but it would, and he had to accept that fact about himself.

But he had a little time yet in which to make the final decision. The imprinting might not be completely successful, and he would still need to go himself—a course much preferable to sending his son.

Harold broke the long silence. "Gentlemen—and friends, if I may call you that on the job—we will move ahead full speed on the launch preparations. Alonzo, set up the triple-trainer for Jarl—but start a separate program for me, to be learned during the actual flight while ground control runs the ship. Believe me—one or the other of us is going!"

Thursday, June 9, 2011

Jarl awoke.

The first conscious sensation was of a steady, unrelenting pressure on his entire body. That heaviness was familiar, a known thing he had experienced before. His thoughts seemed to move like ants struggling in syrup, disordered and very slow, but after a moment he was able to identify the sensation—and with recognition came a mild shock. It was acceleration; and then he identified the muted thunder surrounding him, and the vibration. He was in a spaceship.

Jarl shook his head, feeling dizzy and suddenly sick. What was a man as old as himself doing on a spaceship? But the motion of his head had felt odd; easier to turn to the left than the right. And finally the subtle feel of extra pressure on

his left side corrected his initial assumption. This was not true acceleration; he was in a flight simulator.

Which still made no sense. Why was a man who had served as President of the United States training for spaceflight? It was true he hadn't been an active astronaut for fifteen years, and needed retraining . . . No, there were younger men available for space exploration, whatever the mission. Why should he be preparing to ride a rocket again?

He was not only physically dizzy, but his head seemed stuffed with pillows. He had felt like this a few times when he awoke with a severe hangover—alert but mentally crippled, unable to concentrate, thoughts drifting away when he tried to pin them down. It was a disturbing sensation, and the reason there had been only a few hangovers in his life. He had learned the fine art of drinking in moderation.

Jarl tilted his head and looked down at his body. He was dressed in a pressure suit, and strapped into a pilot's couch of a new type he did not recognize. And with growing wonder, he realized he did not recognize the shape of his own legs, or the wide young hips above them, or the muscular hands that lay at his sides. He glanced around, turning his head slowly to avoid heavy strain. He was in the pilot's cramped compartment of a two-man ship; or at least a simulation of one. The console in front of him looked reasonably familiar, as did the co-pilot's. But there was a shield in place over the lone window, as there always was when the giant simulator was in motion.

Jarl could almost guess where he was; in the fifty-meter triple-trainer at RI Plant One. Building the three-arm centrifuge had been one of his last acts as president of Rockets International, before he resigned to run for President of the United States. He had been fond of telling his White House staff that the first presidency had been a much better job.

"Awake, sir? We would like you to eat, if you can keep the food down."

The voice was from a small screen that had just lit up on the console. Jarl stared at the impassively polite face of a young man he knew at once had to be a flight controller. There was a cheerful and competent sameness about all of them that grew irritatingly familiar to a pilot.

It was difficult to assess his internal condition under a steady three G's, but Jarl tried. He noticed that his head seemed more clear, and he was having less difficulty concentrating on the business at hand. He said aloud, "I think I can eat. And then I want you to tell me—"

"Good! One hot dinner coming right up. We'll answer your questions later, sir. Right now it's best

you sleep some more as soon as you've finished."

A moment later a tray of steaming hot food appeared in a slot at the bottom of the console. This was new; there hadn't been any facilities for food in the original three-trainers. But that had been a long time ago . . . how long? He was fifty-six years old. Was that right? Was this really 2006?

The pillows were back inside his head, this time with the stuffing pouring out, totally clouding his thoughts. Jarl pulled out the tray and started eating. It was difficult under the steady drag of acceleration, but he managed. Why had this become a part of the training? No one stayed under acceleration so long that he had to eat. Even on the Mars trip . . .

The food was gone. Jarl saw a second slot for disposables, and shoved the empty tray and plastic utensils inside.

"Very good, sir. And now we're going to put you to sleep again. Perhaps we can talk during your next wake period."

"But I want to know—"Jarl began, then stopped, angry but helpless. The screen had gone blank. And it was only a short time before he started feeling drowsy again. At first he resisted, looking around for the needle they must have in him, ready to yank it out. But it was down somewhere in the pressure suit, hidden from sight and reach.

Jarl stopped fighting and relaxed, letting sleep take him. Over the years he had learned when to argue, and when to bide his time.

Chapter 4

Thursday, June 9, 2011

"Mr. Hentson, legally speaking, I suppose that rocket is yours until we've signed the final buy-off papers. And I understand you are unloading the Government cargo. But you are still contracted to deliver a space-tanker every month, and—"

"And we will," Harold interrupted. "We have the next two almost on the line." It was best not to mention that RI might use one of those two itself. "The launch of that hunk of the Space Station won't be delayed more than two weeks, and you have enough H and O up there to last longer than that. I'll take the 'late' penalty if SB chooses to impose it."

"How do you happen to know the amounts in the Station's propellant tanks?" demanded Harold's visitor.

Harold was both amused and angry. The pudgy, stuffy little man sitting across from his desk was Wardell Davis, the Space Benefits Agency Representative to RI Plant One. Davis was one of those overly-careful bureaucrats who take such care never to perform a wrong action that decision-making becomes impossible for them. This one had been thrust into unwanted prominence because he happened

to be the man on the spot when SB learned RI was studying the possibility of intercepting the probe.

"Mr. Davis, are you forgetting RI has the maintenance contract for the Space Station? That includes keeping the propellants section supplied with H and O. I receive a copy of the status report that goes to your HQ in Washington."

"Oh. Yes . . . well—let's get back to the main point, Mr. Hentson. The SB administrator is very disturbed to hear you seem to be making some plans to, ah—go against the decision of the World-Premier's office to leave this strange spacecraft alone. We, ah . . . do not know the precise legal situation, but—"

"Nor do I." Harold kept his voice even with an effort of will. It was late in the afternoon, and Davis was his last appointment. He wanted to be rid of the man, and make a fast round of a few critical problem areas. "We do know, though, that the Space Benefits Act of 2007 that upgraded NASA into an international agency also granted private companies the right to launch their own payloads. While SB may still be our largest customer, we have launch contracts with several other companies that are developing space manufacturing facilities. Since there is no known owner of this probe, we consider claiming it a space salvage operation, which is perfectly legal and

proper. Now what else is bothering you?"

"What else is *bothering* me!" Davis was openly sweating, and the fear on his face was genuine. "Good Lord! Man, think what you're doing! What if that—that *thing* up there has weapons on it? Maybe it can defend itself, knock out any ship that comes near it. Possibly it could trace an attacker back to Earth! Didn't that occur to you? All the experts say we're its main target, that it must have picked up radio or holo broadcasts and aimed for us from the beginning. It's just using Jupiter as a free brake. Don't you realize that's why WorldGov decided to leave it alone, as soon as they were sure it was unmanned? If it wants to take readings on us as it goes by, let it! It'll be years and years before the message gets back to its owners anyway."

"Did the Agency recommend to WorldGov that we not try to capture it?" Harold asked, his voice carefully neutral. He had no idea how much Davis knew about the decisions reached at Space Benefits.

"I did get a little on that, on the scrambler circuit." Davis glanced around and lowered his voice, though he knew every word spoken in Harold's office was recorded. "Yes, when they checked into it and realized the best we could manage was a one-way trip, the administrator said to knock it out or let it pass. The public wouldn't stand for a suicide mission, even if we could find an astronaut crazy enough to go. And then I heard the final decision not to meet it with nukes was made by the WP himself! This went all the way to the top. The Premier of WorldGov, not some staff flunky, decided that if we couldn't capture it we'd just leave it alone!"

Davis was treading on dangerous ground; dangerous to the career he valued so highly. But the desire to seem important had overcome his usual caution. People like Davis proliferated in Government service like bees swarming around an unguarded honeycomb. They were also the reason Space Benefits was almost entirely a contract-letting agency, with all the actual work done by private enterprise.

"That's very interesting, and I won't mention where I heard it," Harold said. "Thanks for coming by. Now if you'll excuse me, I have several things to attend to before I can go home."

"Now wait a minute, Mr. Hentson, you haven't given me an answer! Are you going to call off the mission? What can I tell them at HQ?"

"Just tell them I'm busy communing with the spirit of my father," Harold answered, rising. Pat Pajick appeared at Davis' elbow as if by quiet magic, summoned by a silent call.

Muttering and fuming, Davis let Pat escort him out.

Harold left his office by a rear door, descended to the ground, and followed a concrete walk to a one-story building directly behind RI Headquarters. This was Wilhelm Wundt's area, the RI Basic Science Laboratory. Harold nodded and smiled at several people who greeted him, most of whom he did not know by name. Inside he turned to the left, to an isolated wing. The human guard at the door waved him through without the formality of signing the register.

The second shift was already on duty, but Pepi was still hard at work. Harold found the plump Chilean overseeing the technicians performing the imprint operation. Jarl Hentson the Second sat strapped in a heavy chair, surrounded by a maze of machinery, a cap with thick attaching electrical cables on his head. His expression seemed peaceful and intelligent, possibly because he was unconscious.

"Where do we stand, Pepi?" asked Harold.

"It's going quite well," Pepi answered with obvious satisfaction. "The synapses seemed to have accepted the new circuits without strain. We have him back in for a reinforcement, but this should be the last imprinting operation. We awoke Jarl while he was in the trainer an hour ago, and one of the flight controllers talked with him a little while I monitored. The persona seemed almost complete, just about ready to function. There was a"—he hesitated, looking troubled—"a little something odd about the Jarl personality, as though . . . a hidden force was underneath, and trying to push through. I can't describe it very accurately. But regardless, this final reinforcement should establish the persona so strongly it will last longer than the mission."

"Am I right in thinking Jarl was the only astronaut to have his brain read?"

"I believe so. And they took his patterns because he went into politics and got elected President, not because he was the first man on Mars, or the guy who reorganized Rockets International and moved it to Florida."

"I received a complaint from Engineering this morning that you have our largest computer tied up, and they want it. When can you release it?"

Pepi heaved an exasperated sigh. "Hal, you can store the literally billions of circuits and patterns of an operating brain on tape, but you can't play them back one at a time. To create the persona you have to empty the banks in a very large computer and feed it all that data. Playing it back and imprinting the patterns on another brain is a simultaneous process, involving millions of currents moving at once. And even when we're through it isn't the complete original mind,

and can never be. But as I said, this is the last imprinting. Engineering can have its damn computer back tomorrow."

"I'll check with you in the morning," Harold said, and hurried off to the next critical area. That was Carson Jamison's office in Plant One, just down the road from the RI Tower. He found the place empty; Jamison and his staff had gone home.

There was a lighted status board on Jamison's wall. It changed just as Harold was reading it, the percentage of flight readiness jumping to seventy percent. Jamison was easily beating his schedule. He'd have to remember to slide that man into a staff job somewhere, out of the main line of fire. There was no place in production for someone who was afraid to commit himself without a fat safety margin.

Harold leaned back in Jamison's chair, his eyes on the board but his mind elsewhere. A great many people were wondering why he had started RI on this dangerous and probably fruitless course. The odds against success were phenomenal. Even WorldGov had given up . . .

And Harold Hentson realized that was precisely what was driving him. He did not agree with the Government's decision—and was one of the few people in the world in a position to do something about it.

He chuckled, thinking of what Jarl would say if he knew his persona was going to perform a dangerous job that would ultimately benefit WorldGov. The old man had hated the more powerful successor to the United Nations with a passion. He had stalled letting the US surrender part of its autonomy as long as he was President. The first major act his successor had signed in 2005 was the WorldGov membership agreement. A year later Jarl had started the long process of feeding his total memory and all accessible brain patterns onto reels of tape. And in 2007 the supposedly sturdy heart had given out, and Jarl Hentson, first man to set foot on Mars, founding president of Rockets International, United States President from 2001 through 2004, was dead.

Now the old man would soon be alive again, or at least his personality would. But he was to be secluded from all outside contacts except the flight controllers, with Pepi looking over their shoulders. No one knew how well-integrated the personality would be and Pepi's staff had strongly recommended Jarl/Jarl be spared all possible shock. Harold would not even get to shake the hand of the man he had—loved and worshipped more than anyone on Earth.

"So we have it confirmed," said Jodie, looking around the small circle of people in the apartment. "Jesus Hentson is going to defy WorldGov and try to capture the

probe, all by himself. Several of you who work at RI seem to think he actually has a chance, that if he sends his resurrected father the scheme might work. Which means we have to stop the launch. The next question is how. Suggestions?"

"Sure!" a heavily-bearded young man named Sanderson responded. "We can march on that rocket Sunday afternoon. They can't launch with about a thousand of us standing under the nozzles. I'm a guidance engineer for RI, and I can tell you it has to be launched during about a twenty-minute window. By the time they clear us out of the way, it'll be too late."

"Will that work?" Jodie asked, looking around the group. Several people nodded. RI was by far the largest company in the central Florida area, and many employees belonged to the various protest groups. Knowledge of their outside affiliations would have meant trouble with their employer—which only made most of them more determined to fight. It also furnished FOE and other protest organizations a cadre of technically trained people.

"We'll have to have boats," Sanderson went on. "Merritt Island can be easily assaulted over the Indian River, but not by land. Rounding up enough boats to ferry over a thousand people shouldn't be any problem."

"Good. Then why don't you recruit enough help to form a committee, and get started on preparations. Have the owners all in their boats with time to spare Sunday, get a signal set up, assign team leaders, and so on. But that's letting this thing run on till the last minute. Is there any way we can stop it earlier? What about the legal angle? Any lawyers here?"

"I'm an attorney," a gray-haired man spoke up. "Yes, there are several ways to mount a legal attack. But I can tell you that's already in process. I work for Space Benefits at Kennedy. The word buzzing the corridors this morning is that SB will go to court tomorrow for an injunction. It won't be served until Sunday, making it almost impossible for RI to counter before Monday—which will be too late."

"Good! Strange though it seems to have SB on our side. Any other angle? Let's explore all alternatives."

"I know one thing that would stop it," said a very pretty olive-skinned girl with long black hair. She had been introduced earlier as Diana Sharp. "I work at the Citizens National Bank of Cocoa Beach. And I know a way we can get directly to Hal Hentson, put him out of circulation until Monday. The launch won't go without him."

"Oh? What's that?" Jodie asked.

The pretty girl looked uncomfortable. "Sarcoma, I—can we talk alone? And I'll have to have your promise not to repeat this."

Jodie rose and led the way into her bedroom. When the door closed the black-haired girl sat on the bed, looking at her feet as she talked. Jodie saw she was about twenty-five, with a somewhat lush figure, just tending toward plumpness. In a few years she would be fat and doughy-looking. "Sarcoma, we have a—a special account for a Mr. Alexis D. Martin. The bank pays the bills on his apartment, the utilities, and so on, automatically. Making out the checks is one of my jobs. He doesn't come into the bank very often, but he did once, about a year ago. And I—I thought I recognized him. It was just before quitting time on Friday, and my date was waiting for me outside. I got him to follow this Mr. Martin. He went to one of the local hotspots, a pick-up place called the King of the Hill, and he eventually made contact with a girl there, and took her back to his apartment for the night."

"So?" asked Jodie, puzzled.

"Well—it was really Hal Hentson! He was wearing a dark wig and looked a lot different, but it was him. I've learned that he goes out almost every Friday night, usually to the same place. He always picks up a woman there, and takes her back to that apartment, or to her place if she has one."

The girl was obviously embarrassed, far more than seemed warranted by the revelation Hal Hentson kept a private apartment for weekend pickups. Jodie leaned forward and placed a hand over Diana's, which were resting nervously in her lap. "What's the matter, dear? What is it you aren't telling me?"

Diana raised dark eyes in which tears were shining. "Oh Sarcoma, I—the very next Friday I put on a sexy split-waist dress, and went to the Hill, and I let him pick me up! And two or three times more over the past year, until he seemed to lose interest. He still speaks when he sees me, and he's very nice, but he won't take me if he can get someone new. And I've . . . I've been hiding this from my steady, who wants to contract with me for children, but wouldn't if he knew."

"Well, I will be damned!"

Diana burst into tears, and Jodie hastily tried to comfort her. She took the sobbing form in her arms and rocked her gently back and forth, petting and soothing her. The treatment was old but effective. Diana's sobs soon faded into sniffles. She sat up, reached for a tissue, and blew her nose.

"Do you think you're in love with the guy?" asked Jodie, keeping her voice soft and friendly.

"No; no, I'm sure I'm not. It was just a—a kind of cheap thrill, the thought I was actually in bed with the famous Hal Hentson. But he's like anyone else when you get to know him—you know? I'm telling you this because I thought you could use the info. But remember—

no one is to know where you got it!"

"Of course," Jodie said, patting her hands again. "But you've given me an idea. I've been wanting to meet this egomaniac myself."

Diana rose to her feet, a questioning look on her face. "Sarcoma, you wouldn't—I don't want to see him hurt. He was always nice to me."

"Hurting people unnecessarily isn't our style," Jodie assured her. "But maybe we can just remove this great lover from the scene until Monday, after which it won't matter. Keep tomorrow night free. We'll need you to point him out for us."

Diana nodded, and they returned to the main meeting.

Friday, June 10, 2011

Jarl awoke again.

He barely had his eyes open before the little screen on the console flashed on, and another smiling flight controller appeared. Their instruments must be very sensitive; probably had an electroencephalograph inside his helmet.

"Hello there! How about a little food, Jarl? Then we want to check you out on a few rendezvous techniques that may be new. Feel up to it?"

The thought of food suddenly made him amazingly hungry. Jarl nodded, and a hot dish promptly appeared in the slot.

Jarl ate as quickly as the constant drag permitted, moving his arms and hands as though working underwater. This young body was in excellent condition—he clamped that thought off, tried to push it away. But below the cotton floating through his mind something stirred, and a vagrant thought came through. . . . *exercise* . . . *machines* . . . *arms up!* . . . *down!* . . . *up* . . . and then the intruding figment retreated into the fog.

Left behind was a strong feeling of love.

Jarl concentrated on the food. It was good; real, solid. His outside faculties seemed clear enough, despite the fluff in his head. He could worry about what he was doing here later. (And what *was* he? No. No, forget that one. Concentrate on the training. He had a mission to do, apparently an important one. The job first, always.)

Jarl finished the food and disposed of the tray. The image on the small screen watched him with quiet attention.

"And now I want some questions answered," Jarl announced, his voice firm.

The young flight controller smiled. "OK, I'll try. But you may get tired again, so let's run through a few routines first. The rendezvous is going to be by visual contact, with you handling the maneuvering engines and attitude thrusters. We'll work the main drive from Mission Control, cutting off when you take over. We're going to be ahead of

the target, which is accelerating at a constant rate. You'll do a 178-degree turn to the right, match velocity using the maneuvering engines. We want to spend a couple of hours running you through three or four different closing velocities. We'll feed the results into the flight computer and give you a readout on your main screen."

Jarl felt a smoldering anger gathering in his throat. If they tried to put him back to sleep after the practice session . . . *but a soothing, calming sense of total trust welled up from somewhere deep inside, overriding the fear-based anger. They would take care of him. He had only to relax . . .*

Jarl shook his head in bafflement. Just when he seemed to be regaining all his senses, feeling able to respond almost normally, thoughts and attitudes alien to his experience were popping into his head. It was not in his nature to relax and expect others to look after him.

For the moment it seemed wisest to do as the controller asked. He obviously needed to practice for the upcoming mission. And until he knew more about this situation, he was in no position to make his own decisions.

Jarl went to work. It was a pleasure to flex old mental muscles, to find that in some ways his brain was as good as ever. The controls were improved models of the ones he had used in 1990 (how long ago was that?) on the trip to Mars. A little more sensitive and responsive, perhaps, but basically the same. He should have no problem regaining his old skills and doing his job—whatever *that* was!

Two hours later Jarl was tired but content. He finished a closing sequence, made an imaginary contact with the shiny-nosed vehicle boring through artistically dark space toward him, and relaxed.

"Very good!" the controller approved. "You haven't lost much, Jarl, considering . . ." he stopped, looking embarrassed.

"Yeah . . . considering!" Jarl felt a fresh surge of anger and resentment. His tiredness vanished under a spurt of adrenaline. He had never been a patient man. "Now you tell me a few things, sonny. What is this mission I'm training for? And why me? I'm too old for spaceflight . . ." he stopped, not wanting to pursue that line. "Look; trying to think something straight through is like wading in mud up to my butt! And I keep having funny thoughts, odd things that seem to pop out of nowhere and make no sense! I want to know what you've done to me!"

"Mr. President—Jarl—I'm only authorized to tell you certain things. Any information on matters other than the mission will come from your son, Mr. Harold Hentson; he'll talk to you later. Now, as for the mission—this one is so important it makes your pioneering

landing on Mars look like a Boy Scout trip!" The young flight controller briefly explained the salient facts about the probe. "Your job, if the rendezvous is successful, is to get on board."

Jarl shook his head in stunned amazement. So it had happened at last! A genuine extraterrestrial visitor was approaching. This was no flying saucer will-o'-the-wisp but an undeniably real star-traveler. He had always hoped this might happen in his lifetime, but . . . No; cut that one off.

The controller went on, "Now the scientific brains at RI consider it unlikely the probe will have manual controls. They also doubt it will be possible for a human to understand an alien's programmer well enough to work with it. What they think you probably *can* do is disconnect the drive controls enough to stop the engines. The probe will still have too much velocity to stay in our Solar System. But you will have about four hours of main drive propellants left in the Big Bird. There will be an attach fitting on your ship's nose. You are to physically connect to the probe and position per our directions. We will then perform a retrograde firing that will slow the probe, and force it into a tight orbit around the Sun. Our best guestimate is that we can throw it within about twenty million kilometers, and the velocity that remains will be enough to whip it around Old Sol almost in a U curve. That should get you back here in less than three weeks. We'll meet our visitor with another Big Bird, and slow it enough to fall into Earth orbit."

Jarl was silent, almost unable to believe what he had heard. The explanation sounded as unbelievable as some of the problems in engineering textbooks. Could it possibly be true? He looked around at the tiny pilot's compartment. It was quite real and solid. And there was no doubt he was in the flight simulator. The constant, demanding weight of three G's never faltered.

The flight controller was waiting, face preternaturally calm. Jarl said, "That's the dumbest-sounding mission I've ever heard! Only an idiot would risk his life on it. If you're going within twenty million klicks of the Sun, how are you going to insulate the ship? And how do you know that much heat won't damage the probe? Your explanation is full of holes, mister!"

The young face in the small screen grinned. "Yes, sir. Some of us think so, too. But those are our orders. And it *is* the only chance we have at all."

Jarl noticed the younger man hadn't denied this was a suicide mission. And he was supposed to volunteer for it? Who the hell did they think he was! Jarl decided to save that area for later. He had some other urgent questions.

"Something else is bothering me.

I was President of the United States for four years. I have the memory of fifty-six years of life. How have I become twenty again? I haven't had muscles like this for thirty years!"

The friendly smile on the small screen disappeared, and a veil seemed to fall over the guileless eyes. "Sorry, sir; that's an area in which I'm not authorized to furnish answers. Mr. Hentson will supply those when he comes on. Now the physio-monitor here says his readings show you're becoming very tired. How about sleeping for a few more hours?"

Jarl Hentson looked steadily at the waiting face, until the younger man saw his anger. The reserved expression grew more pronounced. But the flight controller remained silent, and Jarl did not feel the expected sleepiness coming on.

"OK! Let the sleep juice flow. But if that wild-hair son of mine is responsible for this, I've got a few things to say to him!"

The professionally calm face split into a wide grin. "Yes, sir. Maybe you can talk back to Hal. Not many of us at RI try it. See you in a little while, then."

Two or three minutes later the drowsiness came and pulled Jarl under again.

Chapter 5

Friday, June 10, 2011

"Hal, Fred Buck's staff just picked up a rumor Space Benefits is going to court for an injunction."

Harold glanced up at Pat Pajick. "On what grounds?"

"The rumor wasn't that specific. Most likely something very legal and abstract, such as interfering with the foreign policy of World-Gov—now that the US no longer has a separate foreign policy."

"Is there such a thing as world foreign policy?"

"No, but that won't help us if they get the injunction."

Harold glanced at the desk chronometer. Pat was right, as usual. In another hour most industrial and legal business in the country would come to a halt for the three-day weekend. It would be very difficult, if the injunction was issued, to file an appeal before Tuesday morning—and the launch was set for Sunday afternoon at 4:31.

Harold had half expected a move of this type. The fear on the face of Davis had been genuine—and there were billions like him in the world.

"And that isn't all," Pat went on, smiling. "The New Friends of the Earth, an ecology group very active here in Florida, held a meeting last night and announced this morning they were going to protest the launch. Volunteers have vowed to crawl up the rocket nozzles and block them with their bodies. The invasion of Merritt Island is set for Sunday afternoon."

"Pat, what—in hell!—has ecology to do with intercepting the probe?"

"This group is opposed to the entire space program, and think of the probe as just more of the same. They seem to be a bunch of extreme fanatics. The original Friends of the Earth was a good organization. They did a lot of hard work in preserving undeveloped lands and waterways, particularly in California and later here. I was a member myself for several years, until a bunch of die-hard fanatics took over and drove out all the people with the least bit of common sense. What you have left now is a bagful of mixed nuts."

"Yes, I'm familiar with their recent activities." Harold could recall several instances of protests in which FOE banners had prominently figured, usually those of important scientific launches to the outer planets. "But it still seems to me they are out of their field."

Pat's smile had vanished. The discussion was drifting too much toward argument, in which he would not indulge. "I'd better get back to work," he said quietly, and turned and left.

Harold stared at his assistant's retreating back. This lack of response was Pat's one weakness. Harold enjoyed bouncing ideas off other people, and hearing their objections. He was capable of modifying his own views immediately if he learned something new and useful. Pat was not a yes man, but neither would he press his own point of view.

But Harold had known that when he promoted Pat. You had to accept people as they were.

FOE was also one of the groups that had gotten the interstellar probe project killed last year. But they worked by whipping up public opinion, and that couldn't be done in time to stop Sunday's launch. Harold was more worried about the possible injunction. That was a real threat.

Harold checked through the stack of paper on his desk, and his action pad. There was plenty to do, but all of it dealt with the normal operations of RI. Everything pertaining to intercepting the probe had been done. And somehow he did not feel like tackling the more mundane work. The sense of driving urgency that had been pushing him all week was finally fading.

Harold called Carson Jamison and Goldstone for status reports, then went home a few minutes early.

The aircar was crowded—Harold wondered how many were RI employees getting an early start on the weekend—but he knew no one, nor did anyone start a conversation. At home he read for an hour, then caught the evening news. The media hadn't been tipped yet to the struggle between Rockets International and the Space Benefits Agency.

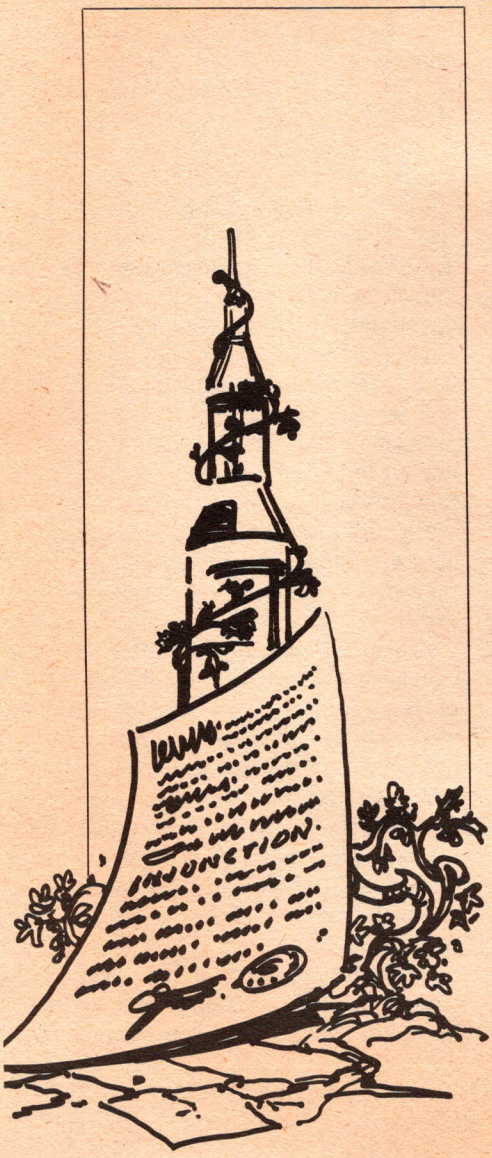
Lily had prepared an excellent dinner. It seemed strange not to have Jarl with them, even though

he normally ate with Robert and not at their table. Lily was preoccupied and silent throughout the meal, as she often was these days.

After dinner Lily curled up in front of the holovision, where she had probably spent most of the day. Harold went to his quarters, bathed, shaved, and dressed.

"Going out for poker?" Lily asked when he emerged.

The Friday night poker game was a pleasant fiction they both carefully maintained. "Yes; don't wait up for me," Harold said, and kissed her good-bye. Her acceptance of his Friday nights out was another reason they were still together.



It was a ten-minute flight to Cocoa Beach, but the aircar made several stops over the sixty-kilometer trip. Harold felt a gathering sense of excitement and anticipation. It was eight o'clock when he finally reached the Royal Twin Towers, in the heart of town. Harold got out and hurried to the service elevator. On the fifth floor he walked a familiar path, primarily through service corridors, until almost opposite his apartment. He met no one during the two minutes he was in the regular hallways.

Safely inside, Harold discarded his conservative gray suit and pulled a clinging black one-piece form-fitter from the bedroom closet. It had long sleeves, and a wide collar that reached almost to the edge of his shoulders. In the back the collar hung down like a short cape. This was his favorite outfit, and he hadn't worn it in a month.

Harold pulled a clean jockstrap

from the dresser drawer. It was mildly uncomfortable, but mandatory in this costume. He redressed, pulled and adjusted the suit until it fit like a second skin, and walked into the bathroom. He chose the very black, curly-haired wig from the four available, and carefully pasted it on. It had short but bushy sideburns attached. Only a minute was required to touch up his eyebrows until the color matched. Taking out his regular soft contact lenses, he substituted a pair that turned his dark gray eyes to dark brown. Finally he slipped on ankle-high boots of black vinyl, and hung the strap of a small black purse over his shoulder. It contained credit cards, driver's license, and a Social Security card, all made out to Alexis Don Martin. The resemblance on all the photographs was close enough to pass.

Harold checked his appearance in the full-length mirror inside the bathroom door. There was a slight but noticeable bulge at the waistline; he needed to exercise more. Otherwise he still looked very trim for a man of forty-one.

The disguise would not fool a friend met at close quarters. But he did not expect to see any such tonight.

Harold removed some money and his car keys from a locked bureau drawer. At the door he looked carefully around, satisfying himself the place had a "lived-in" look. There was only the living room, bedroom, bath, and a tiny kitchenette. A minimum of clutter made it seem occupied. Satisfied, he locked the door again and descended to the parking garage.

The steamer car was hard to start, a disadvantage of driving it only once a week. The flame finally ignited, and one minute later the "ready" indicator said steam was available. Harold eased out into the heavy Friday night ground traffic.

Cocoa Beach, the island community which had been nicknamed "Sin City" in the early days of space exploration, was still the liveliest area on the mid-Florida coast. The condominiums and towering apartment buildings that walled off the beach, almost from Jacksonville to Miami, were present here also. But on the inland side, along the beaches fronting the Indian and Banana Rivers, the density was not so great. Many one-story buildings and even private homes still survived.

Harold drove two kilometers north and turned west, onto the causeway leading to the mainland. At the edge of the Banana River he turned right, into the parking lot of a small, almost dark building. A discreetly lighted sign above the door identified it as the King of the Hill.

He was a little early, and the place was less than half full. Harold waved to the pretty barmaid, whom he had dated in years past,

and took his usual place under number forty-one. This was his private joke, that he shared with no one. He could pass for thirty-five, and always gave that as his age.

Harold ordered his first drink, which the pretty barmaid knew to make rum-flavored and weak, and began the hunt.

When he had gradually realized Lily could never be a truly satisfying life partner, some fifteen years back, Harold had first gone the typical rich man's route of keeping a mistress. He had tried several, and discovered to his surprise that compliant women and ready sex were not enough. He could only interact pleasurably with a woman who retained her independence, who was capable of saying no—and could force him to earn her approval.

These Friday nights in another identity were also good for his mental equilibrium. Harold realized he was a strong personality, and tended to dominate those over whom he held authority. Shedding the role of executive, putting his basic body and personality up front, compelled him to recognize his limitations. The arrogance that could grow in a man whom employees called by his first name, but most leaped to obey his slightest wish, was tamed, held down. He not infrequently would try for the most attractive sex-ob in the place—and lose, and return to the secret apartment to sleep alone.

Harold recognized that these failures were a necessary part of keeping in touch with the real world—but still competed vigorously to prevent them from happening.

He glanced around the long, narrow room. The band was on a dais at one end, the bar across the full width of the other. Every four-person table had a voice-only phone in its center, and a matching number hanging overhead. There were even telephones and numbers at the bar.

It was just past nine o'clock, and the place was slowly filling. As usual, there were more men than women among the sex-obs present. And a great many of the phones were already busy.

The three-man band began its first number, and several couples rose to dance. The open area in front of the bandstand was relatively small, but could hold an astonishing number of bodies. Harold sat out the first two before getting a call from a girl he knew, Diana Sharp. They danced, and he learned Diana was there with a boyfriend—which was a relief, because he had no desire to become involved with her again. She had been fun for a few nights, but had started dropping hints about contracting for marriage—obviously wanting to make their arrangement permanent. Instead, he had gradually broken off with her, though they remained friends.

Back at his table, Harold saw

that two new arrivals had seated themselves nearby. One was a short and very pretty brunette. Her companion was a tall and rather muscular blonde, wearing a permanently sullen and somewhat hostile expression.

Something about the two spelled "lesbian," and Harold lost interest. But their phone rang, and the brunette answered. She evidently declined an invitation to dance. Over the next hour it rang several more times. About the fifth call she accepted the offer, and danced with a slightly chubby young man barely taller than herself. After that she danced twice more, though the blonde never left the table.

That was atypical behavior for lesbians. Harold continued to watch them as he danced several times, always with a woman he already knew. He struck out twice in trying for dances with attractive strangers. The pretty brunette continued to accept about one invitation out of five. He had no way of knowing if she knew the men or not.

At about one o'clock the crowd began to thin out. Harold had made passes at two of the women he knew, but been turned down with pleasant smiles. The lovely brunette continued to intrigue him. Harold finally decided he had nothing to lose, and dialed her number.

"Hello!" came the woman's quick response.

"Hi! I'm Alexis Don Martin—Alex for short, at table forty-one. I notice you're very selective about whom you dance with. I hope I meet the qualifications, whatever they are. You're about the prettiest sex-ob in the room—though I think you already know that."

As Harold was talking the girl's head turned until she saw him. She smiled, but looked back at the phone to say, "I decline anyone who tries obvious flattery, as you're doing."

"Not so!" Harold said quickly. "The truth isn't flattery. That tall redhead in the gold skin-tights who was better-looking just left."

The brunette laughed. "You're either honest or quick. Go for the next one, then."

It wasn't honesty that had caused Harold to respond that way. He didn't think the over-lush sex-ob he had mentioned was as attractive as this smaller woman.

In Harold's arms she stood about 155 centimeters tall, a good match for his own 178. The band was playing more and more slow numbers as the evening neared its end, and this one was a waltz. They moved through the gracefully formal steps with ease and pleasure.

"What can I call you?" Harold asked as she swung lightly on his arm.

"Jodie will do," she murmured, eyes half-closed, a dreamy look on her face. Her voice was somewhat deep, throaty, and very appealing.

Jodie was dressed in a blue-vel-

vet elastex body-stocking that clung tightly to her figure, but did not outline every subtle curve and bulge like the stretchable skin-tights. Harold saw she was older than she had first appeared, approaching or past thirty. Her hair was as black as his wig, but looked natural. She wore it straight and long, hanging below her shoulders. The nose was slightly snubbed, the large dark eyes framed by very long lashes. Her cheekbones were prominent, the lips short but full. There was a kittenish quality in the way she moved, in the warm smile that came quickly and lingered, in the husky laugh. But there was also an alert intelligence lurking around those lovely eyes, a certain cool aloofness.

Altogether, an intriguing woman.

Back at her table Harold thanked Jodie for the dance, and returned to his own seat. To play the game by the rules he made another call, to a tiny Asian girl sitting at a table so close he could as easily have spoken direct. She accepted him for the next dance. The remaining sex-obs, both male and female, were getting less discriminating as available partners thinned out.

At his table again Harold called Jodie, who had danced with someone else, and was accepted for the next number.

"I just love the old dances," Jodie said as they again moved through the easy grace of a waltz. "Aren't you glad they keep bringing them back?"

"Yes, they're great," Harold agreed. He would have agreed if she said the sky was falling. It was less than a half-hour before the King of the Hill would close.

"Would you like to join us for a drink?" Jodie asked when the music stopped. The kittenish quality was strong in her voice and smile.

Harold felt the first quick rush of blood, the heady feeling of triumph. "If I can buy," he said, still following formula.

"It's your money," Jodie replied—an unusual response. At her table she introduced him to her friend, who went by the odd name of Strobe. They had three of what the women were drinking, which were Jupiter-Poos. It was an atrociously sweet concoction, but at least one based on his favorite alcohol, rum.

Some men were drifting out the door alone, having given up for the night. A few women were still at the tables, mostly middle-aged, ugly, or drunk. There was one more number, then the last drinks of the night, and the final slow dance to "The Moons of Saturn," which Harold caught with Jodie.

When they returned to the table, Strobe had left. There was some money in front of her glass. Harold reached for their bill and the cash, and asked, "Where did Strobe go?"

"Probably home. I told her you'd give me a lift."

"Oh." Harold picked up his own bill, and paid both at the bar on the way out. This was becoming almost too easy, as though no further persuasion was necessary.

Harold unlocked his steamie and seated Jodie. Then he casually leaned inside and quickly kissed her, before walking around to the driver's side.

The burner caught immediately this time. During the sixty seconds of waiting he reached for Jodie. She obligingly leaned sideways, and their mouths met in a hard, passionate kiss.

The "ready" indicator flashed on. When their lips parted Harold asked, "Where to?"

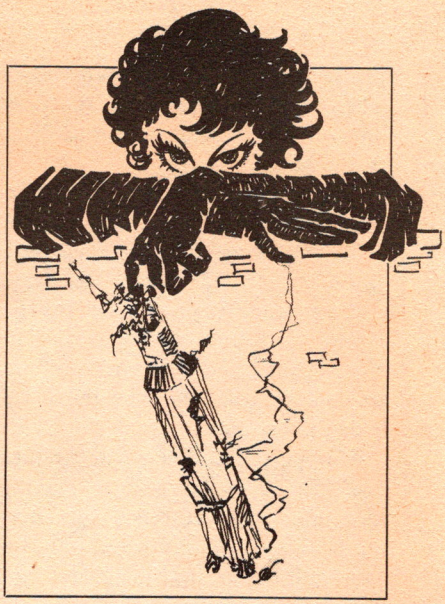
"The Summerwell; I have an apartment there for the summer."

"Then you don't live in Florida?"

"No, I'm here on vacation. I'm a teacher in Minneapolis; high school."

At the Summerwell, an older complex that rented to transients as well as local people, Harold parked in the numbered slot that Jodie indicated. Instead of getting out he reached for her again, but she stopped him with an upraised hand and a quizzical smile. "Look, I picked you out of what was available; you don't have to work for it. Let's save the heavy stuff for later."

Mentally, Harold shrugged; this little sex-ob wasn't as ordinary as she appeared. He got out and opened her door.



Jodie led him into the front of the old building, and up by elevator to the sixth floor. They walked down a long corridor to 618. She unlocked the door herself, and ushered him inside. He stood blinking in the dimness when she closed the panel behind him. Then Jodie found the switch, and light flooded the room.

"Hi," said the tall woman called Strobe. She was leaning lazily against the wall to Harold's right. One hand held a pistol, pointed with casual competence at his stomach.

Harold felt his body tense from shock. That was followed immediately by a rising disgust. So it had all been a set-up, and his suspicion that Jodie was proving too easy had been justified. But puzzlement

replaced the suspicion. Why him? There had been a score of older and more affluent-appearing men in the Hill.

Jodie was smiling broadly. "Come in, guys!" she called.

A bedroom door opened and three men filed out. Two were young, barely grown, with the straggling beards and matted hair that seemed the standard uniform of college freshmen. The third was older, about fifty.

"Slippers, get his keys and return the steamie to his regular parking slot under the Towers; you know the place. Jackie will be waiting for you with a ride back. Bill and Sergio, tie his hands." It was Jodie speaking, but there was a subtle change in the husky voice. She spoke as someone accustomed to command, a quality Harold easily recognized.

The older man approached Harold from the side, keeping out of the line of fire. When he had the car keys, Slippers left. The college students did a competent job of tying Harold's hands behind him. He watched intently for a chance to grab one and tumble him into Strobe, but they gave him no opportunity.

"We have a special room all ready for you, Jesus," Jodie said, gesturing toward the bedroom where the three men had hidden. "Behave yourself, and later we'll untie you."

Harold felt a second shock. These people knew his true identity!

Jodie saw the surprise on his face and laughed, the husky voice tinged with mockery. "That's right, Mr. Harold Hentson, president of Rockets International—we know who you are. And while we're taking off the disguises, I also have another name. The FacSheets call me Sarcoma!"

The bewilderment Harold felt must have shown; he had never heard of her.

Jodie looked a little disappointed. "Means nothing to you, I see. Well I'm famous in certain quarters, as you'll soon learn. Both the FBI and WorldGov Security have a thick file on that name. And it will be better known when we release you Monday, after it's too late to intercept that probe."

"But—sarcoma is a type of cancer!" Harold blurted as he stepped into the room. "And why do *you* want to stop us from capturing the probe?"

"Because the last thing this tired world needs is more space technology!" Jodie said, and grasped the doorknob. As the panel swung toward her the short, full lips curved into a lovely smile, and the sexy voice sank to a low register. "And you can think of *this* Sarcoma as a cancer in the connective tissues of Technological Man!"

The door closed, and Harold heard a lock click.

TO BE CONTINUED

THE TRIPPER

There's a major difference between "talent" and "ability."

KEVIN O'DONNELL, JR.

I suppose it was my own goddam fault, for having sent a child to do a man's work. But, hell, how was I supposed to know, huh? Tell me that.

See, Chang Chih-lan, one of the top men in the PRC, was missing and presumed exiled. You've probably never heard of him, but don't take that as a reflection on your ability to keep up with current events. Chang was a real behind-

NEVIN WASHINGTON

the-throne type, even for China, where raising your head above those around you only gives your enemies a better shot at your throat. He had a PhD or two in psychology, MD's in psychiatry and neurosurgery, and a bunch of other letters equally indicative of his interest in the human mind. The Korean War had given him his first chance to put theory into practice, and he'd gone upward from there. By the time he dropped out of sight, he was the expert Mao and Chou called on whenever it was time for a new current of thought.

It always bothers us when we lose track of a big-wig, but Chang's disappearance was more upsetting than usual. A powerful force for moderation and détente, he'd been instrumental in bringing about a freer flow of information between Peking and Washington. They say he used to play a lot of poker during his days at Johns Hopkins, which made him aware of the American willingness to call a bluff. As a man with a deep love for his country, he labored to get relations to a stage where the PRC wouldn't be offering any bluffs for us to call.

The Director was unhappy about the situation, so he told me to find Chang and pump him. The way he figured it, if Chang had gotten bounced for his personality, that was one thing—but if it was for his politics, then the analysts down in the basement would have to crank out a whole new set of scenarios. The banishment of a moderate often heralds a move toward extremism.

So there I was with the order, "Find Chang and ask him what happened." I wish people wouldn't give me assignments like that. Other people get commands like, "Read the Bolivian papers and tell us what you think their attitude toward the US is at present." Me, I get the lulus.

Well, a week or two went by and all my feelers were out. Brief, unhelpful bits of information flashed up them; new and revised directives flashed back. Finally, somebody told somebody who told somebody who told our man in Taipei that Chang Chih-lan was under house arrest in an obscure commune in the province of Heilungkiang, up there around Manchuria.

Heilungkiang is right on the ocean, just south of the Soviets' Maritime Provinces, and there wasn't a chance in hell that I could send an agent in through overt channels. The whole province is off-limits to foreigners; that goes double for Americans. No tourists, no businessmen, no newsmen, nobody. That meant I had to call on Rudolf.

Mikhail Mikhailovitch Rudolf. A strange name for an eighteen-year-old kid from Des Moines. His parents were fourth-generation American, too—but since he was born at

the height of the Cold War, they decided the name would remind the rest of us of all the decent Russians being oppressed by the Communists. I don't know; to my way of thinking, all it did was start the kid off on the wrong foot.

Rudolf's been described as "a bit dotty." That's as accurate as anything. His main problem is that he's a genuine, full-fledged teleport. After a suitable warm-up, he can transport himself from one place to another in the blink of an eye, even if those places happen to be New York and Los Angeles. All he needs is fifteen seconds to get the brain cells steamed up, and some sort of mental image of his destination. That might not sound like a problem to you, but . . . the result was, he spent so much time sharpening his ability that he completely neglected such niceties as physical coordination. When we describe him, we use the word "awkward" a lot, if we're feeling charitable.

Nobody knows how he came by his talent, or even if he came by it honestly. He claims he first noticed it one day during history class, when he found himself on a bus to St. Paul. We've been more than mildly interested in it, but there's not a whole lot we've been able to do in the way of investigation. Every time we tried to question him about the onset of his ability, he got uncomfortable and faded out. Literally. So we stopped pushing.

Now, you may have noticed that I referred to him as an eighteen-year-old, and you may be wondering what the hell we're doing using him. Set your mind at rest. We are not cradle-robbers. We did not ask him to work for us. In fact, we tried to talk him out of it for a while—we suggested that he finish up high school, get through college, and generally make himself more valuable to us. Unfortunately, the boy's got a mind of his own. He'd pull the brim of his hat down over his eyes, pitch his voice low enough so it wouldn't crack, and tell us, "Darn it, I'm going to be a spy, and if I can't be one for you, I'll go be one for somebody else. So there!"

He's got a James Bond complex, no doubt about it. We're still trying to convince him that 007 was a figment of Fleming's imagination, but he gives us this scornful look and mutters, "Don't try to kid me. You can't." Every chance he gets, he's off searching for Bond in a glamorous Mediterranean casino. I think he wants some pointers.

See, Rudolf is not what I'd call your average, good-looking guy. He's about six-three, but he weighs in at maybe 160, assuming he's been swimming with all his clothes on. He's got flaming red hair that reminds me of a worried Brillo pad, and a case of acne like the staff dermatologist has never seen before. We try to keep our people happy, but when we asked the doctor what could be done for Ru-

dolf's face, his complete answer was: "Transplant." So we keep the kid stocked with Clearasil and sun lamps, and hope he'll grow out of it.

That's my man. Immature, dreaming, clutzy, and a few short of a dozen. The discerning reader will wonder why we bothered with him, and the reply is simple: he was one of our most useful agents. Note that I didn't say "best." He wasn't very good. But he was useful. He didn't need any kind of cover, any kind of language or cultural skills, or any organization to get him in place. And for rush jobs he was little short of fantastic—say some Senator hears that the Russians were MIRVing more missiles than they should be, and demands to know why we haven't kept Congress informed. Well, I just give Rudolf a camera (preferably self-focusing, because he's no good with them, either), show him a picture of the site, and *whoosh!* he's off. A few minutes later, he's back, we develop the negatives, and they're sitting on the desk in the Oval Office half an hour after that. As a spy, he's a lot like instant coffee—great if you don't have the time or the equipment for the real thing.

Anyway, when I discovered that one of my men had to get to Chang Chih-lan, I knew that nobody else could do it. I pressed the buzzer on my intercom and asked Lois to find Rudolf. She sighed, and promised that she'd do her best. Twenty minutes later, I heard a glass shatter on the parquet floor of my office. Rudolf was at my liquor cabinet, trying to fix himself a drink. He gave me a sheepish grin and abandoned the attempt.

"Sit down," I suggested, pinching the bridge of my nose. "And take off your trench coat, it's hot in here."

He shook his head and tried to make his eyes look cold. Lighting a cigarette, he kicked himself in the knee as he tried to cross his legs. "Got a job for me?"

I took a deep breath, thought better of it, and smiled, so as not to show the strain. "Why, yes. It shouldn't be too difficult. We want you to go to a commune in northeast Manchuria, and find a certain individual. We want to talk to him, so you'll carry a radio with you. When our conversation is finished, you'll return with the radio. Simple enough?"

"A breeze." He coughed slightly.

"Fine." I got myself out of my swivel chair and went to the door. "Let's get you the equipment you need."

"Great! Meet you at the armorer's." He closed his eyes and started to concentrate for his jump.

I left the room with a grimace distorting my usually inscrutable features. I couldn't decide how to express my fears that he'd put a hole through his leg.

He crouched on a stool in the

middle of the briefing room, so laden with equipment that he resembled one of those little Mexican burros. It was all light-weight stuff, since he couldn't teleport more than sixty pounds, but it was bulky. "Chief," he was saying glumly, "I gotta tell you, I'm not too happy about this parachute business."

"Can't be helped, Rudolf. The only pictures we've got are aerial photos." That was one of the drawbacks to his teleportation. If you gave him a picture of a place, and told him to go there, he didn't wind up in the place itself. He materialized at the point from which the picture was taken.

"Can't you blow them up some more?"

"Sure. And then you'll be so low that your parachute won't open."

"No, I mean more than that."

"Not with any degree of accuracy. It gets pretty grainy, you know."

"But you've got an informant right there—"

"And it takes over a month for a round-trip communication with him. By that time, things could be really screwed up. Gotta go, Rudolf. Duty calls."

That stiffened his upper lip. He squared his shoulders and a misty look came into his eye. "Kiss Moneypenny for me," he mumbled.

I gave him a sharp slap across the face to bring him out of his warm-up. "Rudolf," I said as gently as I knew how, "the thing you're holding is the quick release—that'll drop the chute right off your back, and we don't want that, do we?" I unclenched his fingers and looped them around the ripcord. "*This* is what you pull, Rudolf. Now, good luck."

"You're supposed to say *merde*," he complained. Then he was off.

Half an hour later, I was down in the Communications Room, with a translator and several experts who were itching to talk to Chang. One of the duty officers came over, and said my secretary was on the phone. I picked it up. "Yeah, Lois?"

"Rudolf's back; he's in your office now."

"Back? What the mother—sorry, Lois. Tell him to get himself down here right away, OK?"

"Yes, sir."

I timed it. Nineteen seconds after she'd hung up, he appeared in our midst. "Sorry," he said as he tripped over the interpreter's foot. He held the radio at arm's length, sort of the way a child holds a dead goldfish.

"What's wrong with it?" I growled.

"I don't know, I'm no expert." He handed it to somebody who'd reached out for it. "No trouble getting there, Chief. Found him right away. He's eager to talk to you all, and says he's got some info that'll blow the roof off Mao's library."

The man who'd relieved Rudolf of the radio broke in with a disgusted, "There's nothing wrong with this. Just plug it in and it'll go."

The kid looked blank. "Plug?"

I took my face out of my hands and said, "On the side, Rudolf, is a little switch. Push it one way and you've got AC—that means you have to plug it in. Push it the other way and you've got DC—that means you run it off the battery. Somebody switch it to DC for him." I waited patiently while the necessary operation was performed; I gnashed my teeth until he had melted away. Then I went to look for some aspirin.

If the rest of this narrative seems hazy, well, the information we've received has been sketchy, to say the least. Rudolf, of course, made his report as quickly as possible, but . . .

We'd just finished questioning Chang. He and Rudolf were in the large study of his house in the commune. By all accounts, Chang was not receiving the treatment usually accorded a political exile. How much of this was due to his skills at persuading people, and how much was due to his warden's fears that Chang, if rehabilitated, would remember, remains unknown. Suffice to say that instead of being low man on the communal totem pole, Chang was the *de facto* leader of the small community.

They were alone. Nobody had dared to intrude once Chang had claimed the odd-looking foreigner was a die-hard revolutionary committed to the overthrow of the United States Government and to the establishment of a Maoist state in America. According to the quick-witted psychologist, who was also the only man in the commune to speak English, Rudolf, outraged by imperialism in action, had deserted his outfit in South Korea, stolen a jet, and bailed out over China. That's going to look bad in Rudolf's dossier, but it can't be helped.

Anyway, we'd signed off at our end, more than satisfied. Rudolf was bent over the radio, trying to

find the switch. He heard a stealthy sound, whirled, dropped into a karate stance, and saw the white-haired doctor holding a crowbar in his upraised hand. Our man moved forward like a cat (his words), feinted toward Chang's unprotected solar plexus, and lashed his foot at the old man's impromptu weapon. Not unsurprisingly, Chang pulled the crowbar in, watched the kick flash by, and delivered a real star-raiser (his words) to the back of Rudolf's head.

The next thing he knew, he was lying on Chang's black leather couch, which evidently was a remnant of more bourgeois days and practices. His hands and feet were tied; a pair of stereo earphones was clamped on his ears. Recognizing that he was in a dangerous position, he closed his eyes and started to warm up for the jump back to HQ. A few seconds later, a horrendous shriek sounded in both ears, startling him out of his concentration.

A low laugh filled the earphones, and he glanced up. Chang was in the deep leather chair at the head of the couch. Pressing his fingertips together, the psychologist spoke into a microphone dangling from his neck. "Tape recorders," he said, "are truly marvelous things, aren't they?"

"What—" The scream returned, and temporarily threw his eyes out of focus.

"A closed loop, my dear boy. Every ten seconds, that horrid noise

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will wash over your eardrums, and infiltrate your mind. I noticed, you see," he added apologetically, "that when you teleported—that is the proper word, isn't it?—that when you teleported back to your office to have the radio repaired, you concentrated furiously for fifteen seconds. I theorized that if your concentration were broken, you wouldn't be able to escape. I'm not wrong, am I?" His voice betrayed a touch of anxiety.

Rudolf stiffened as the piercing wail came again. "No, you . . . you lowdown, double-crossing, no-good . . . dirty rat!" His feelings relieved, he lapsed into an heroic silence.

"Excellent, excellent," murmured the doctor. He rubbed his hands together and lifted a shiny hypodermic off the table next to him. "Now, with this, and a few other things, why, we'll have your secret out of you in no time."

Rudolf's eyes widened as the needle broke through his skin. "I won't tell," he vowed, "Only my name, rank, and serial number, that's all. My name is Mikhail Mikhailovitch Rudolf, GS-7, Social Security #268-58-9872. That's all I'll . . . name is Mikhail . . . 8-58-987 . . . G . . . what do you want to know?"

He had no idea how long he lay there, babbling everything he'd ever heard. Thankfully, he hadn't picked up much around *here.* We never trusted him with coffee money, much less secrets. Still, he *was* gone two days, and it's our assumption that he returned immediately upon being released—he's got a highly developed sense of duty, if nothing else.

So now our problem is twofold. First, we've got to get Rudolf back. He vanished seconds after concluding his report. It's our belief that the interrogation—and his inability to resist the chemicals used upon him—pushed him over the edge. Before that, he was pretty pleased with himself. When we last saw him, he was trying to decide whether he was a failure or a traitor or both. So he's off somewhere, working it out, and all our agents not otherwise occupied are tracking him down. After supplying them with anesthetic darts, tape recorders, ten second loops, and stereo headphones, I ordered them to take up stations everywhere Rudolf has been sighted, or is likely to go: Berlin, Vienna, Hong Kong, Jamaica, Casino Royale . . .

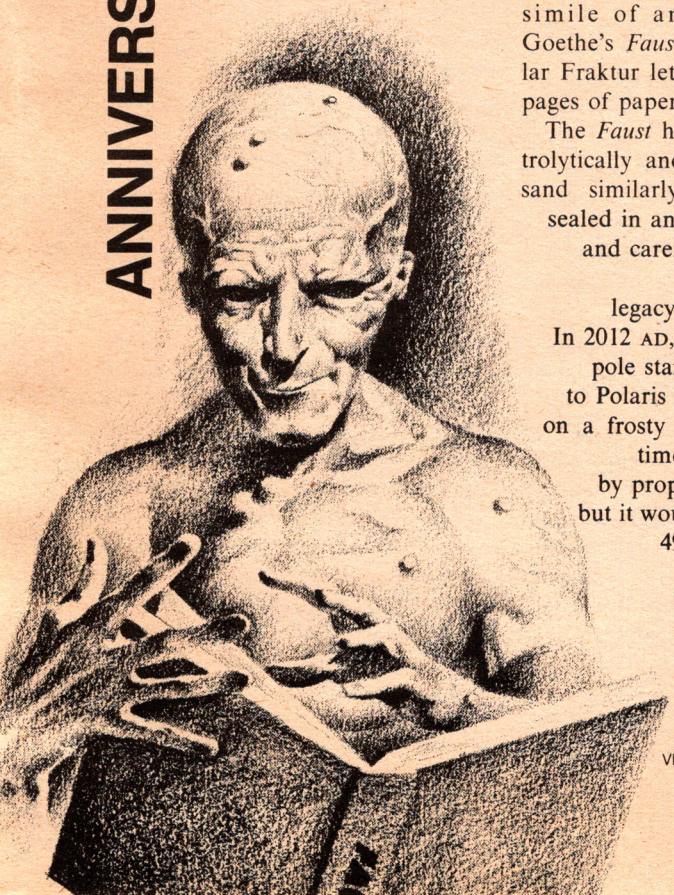
Then, of course, we've got to figure out what to do about Chang Chih-lan. Now that he's got Mao, Chiang Ching, Wang Hung-wen, and all the rest of the radicals resettled in communes along the Russian border, is he going to play ball with us? Or did that rumor of a flash-bulb going off in the President's bedroom last night mean what I think it meant?

I wish people wouldn't give me assignments like that. ■

ANNIVERSARY PROJECT

When did humankind become a time-binding creature? How long will we continue to attach sentimental feelings to the planet's rotation?

JOE HALDEMAN



VINCENT DI FATE

His name is Three-phasing and he is bald and wrinkled, slightly over one meter tall, large-eyed, toothless and all bones and skin, sagging pale skin shot through with traceries of delicate blue and red. He is considered very beautiful but most of his beauty is in his hands and is due to his extreme youth. He is over two hundred years old and is learning how to talk. He has become reasonably fluent in sixty-three languages, all dead ones, and has only ten to go.

The book he is reading is a facsimile of an early edition of Goethe's *Faust*. The nervous angular Fraktur letters goose-step across pages of paper-thin platinum.

The *Faust* had been printed electrolytically and, with several thousand similarly worthwhile books, sealed in an argon-filled chamber and carefully lost, in 2012 AD: a very wealthy man's legacy to the distant future. In 2012 AD, Polaris had been the pole star. Men eventually got to Polaris and built a small city on a frosty planet there. By that time, they weren't dating by prophets' births anymore, but it would have been around 4900 AD. The pole star by then, because of precession

of the equinoxes, was a dim thing once called Gamma Cephei. The celestial pole kept reeling around, past Deneb and Vega and through barren patches of sky around Hercules and Draco; a patient clock but not the slowest one of use, and when it came back to the region of Polaris, then 26,000 years had passed and men had come back from the stars, to stay, and the book-filled chamber had shifted 130 meters on the floor of the Pacific, had rolled into a shallow trench, and eventually was buried in an underwater landslide.

The thirty-seventh time this slow clock ticked, men had moved the Pacific, not because they had to, and had found the chamber, opened it up, identified the books and carefully sealed them up again. Some things by then were more important to men than the accumulation of knowledge: in half of one more circle of the poles would come the millionth anniversary of the written word. They could wait a few millennia.

As the anniversary, as nearly as they could reckon it, approached, they caused to be born two individuals: Nine-hover (nominally female) and Three-phasing (nominally male). Three-phasing was born to learn how to read and speak. He was the first human being to study these skills in more than a quarter of a million years.

Three-phasing has read the first half of *Faust* forwards and, for amusement and exercise, is reading the second half backwards. He is singing as he reads, lisping.

"Fain' Looee w'mun . . . wif all'r die-mun ringf . . ." He has not put in his teeth because they make his gums hurt.

Because he is a child of two hundred, he is polite when his father interrupts his reading and singing. His father's "voice" is an arrangement of logic and aesthetic that appears in Three-phasing's mind. The flavor is lost by translating into words:

"Three-phasing my son-ly atavism of tooth and vocal cord," sarcastically in the reverent mode, "couldst tear thyself from objects of manifest symbol, and visit to share/help/learn, me?"

"?" he responds, meaning "with/with/of what?"

Withholding mode: "Concerning thee: past, future."

He shuts the book without marking his place. It would never occur to him to mark his place, since he remembers perfectly the page he stops on, as well as every word preceding, as well as every event, no matter how trivial, that he has observed from the precise age of one year. In this respect, at least, he is normal.

He thinks the proper coordinates as he steps over the mover-transom, through a microsecond of black, and onto his father's mover-transom, about four thousand kilometers away on a straight line

through the crust and mantle of the Earth.

Ritual mode: "As ever, Father." The symbol he uses for "Father" is purposefully wrong, chiding. Crude biological connotation.

His father looks cadaverous and has in fact been dead twice. In the infant's small-talk mode he asks, "From crude babblings of what sort have I torn your interest?"

"The tale called *Faust*, of a man so named, never satisfied with { symbol for slow but continuous accretion } of his knowledge and power; written in the language of Prussia."

"Also depended-ing on this strange word of immediacy, your Prussian language?"

"As most, yes. The word of 'to be': *sein*. Very important illusion in this and related languages/cultures; that events happen at the 'time' of perception, infinitesimal midpoint between past and future."

"Convenient illusion but retarding."

"As we discussed 129 years ago, yes." Three-phasing is impatient to get back to his reading, but adds:

"Obvious that to-be-ness { same order of illusion as three-dimensionality of external world. / thrust upon observer by geometric limitation of synaptic degrees of freedom. }",

"You always stick up for them."

"I have great regard for what they accomplished with limited faculties and so short lives." Stop beatin' around the bush, Dad. *Tempis fugit*, eight to the bar. Did Mr. Handy Moves-dat-man-around-by-her-apron-strings, Twentieth Century American poet, intend cultural translation of *Lysistrata?* if so, inept. African were-beast legendry, yes.

Withholding mode (coy): "Your father stood with Nine-hover all morning."

"," broadcasts Three-phasing: well?

"The machine functions, perhaps inadequately."

The young polyglot tries to radiate calm patience.

"Details I perceive you want; the idea yet excites you. You can never have satisfaction with your knowledge, either. What happened-s to the man in your Prussian book?"

"He lived-s one hundred years and died-s knowing that a man can never achieve true happiness, despite the appearance of success."

"For an infant, a reasonable perception."

Respectful chiding mode: "One hundred years makes-ed Faust a very old man, for a Dawn man."

"As I stand," same mode, less respect, "yet an infant."

They trade silent symbols of laughter.

After a polite tenth-second interval, Three-phasing uses the light in-

terrogation mode: "The machine of Nine-hover . . .?"

"It begins to work but so far not perfectly." This is not news.

Mild impatience: "As before, then, it brings back only rocks and earth and water and plants?"

"Negative, beloved atavism." Offhand: "This morning she caught two animals that look as man may once have looked."

"!" Strong impatience, "I go?"

"." His father ends the conversation just two seconds after it began.

Three-phasing stops off to pick up his teeth, then goes directly to Nine-hover.

A quick exchange of greeting-symbols and Nine-hover presents her prizes. "Thinking I have two different species," she stands: uncertainty, query.

Three-phasing is amused. "Negative, time-caster. The male and female took very dissimilar forms in the Dawn times." He touches one of them. "The round organs, here, served-ing to feed infants, in the female."

The female screams.

"She manipulates spoken symbols now," observes Nine-hover.

Before the woman has finished her startled yelp, Three-phasing explains: "Not manipulating concrete symbols; rather, she communicates in a way called 'nonverbal,' the use of such communication predating even speech." Slipping into the pedantic mode: "My reading indicates that such a loud noise occurs either

$$\left\{\begin{array}{l}\text{following a stimulus}\\ \text{that produces pain}\end{array}\right\}\text{; }\left\{\begin{array}{l}\text{under conditions of}\\ \text{extreme agitation}\end{array}\right\}$$

since she seems not in pain, then she must fear me or you or both of us."

"Or the machine," Nine-hover adds.

Symbol for continuing. "We have no symbol for it but in Dawn days most humans observed 'xenophobia,' reacting to the strange with fear instead of delight. We stand as strange to them as they do to us, thus they register fear. In their era this attitude encouraged-s survival.

"Our silence must seem strange to them, as well as our appearance and the speed with which we move. I will attempt to speak to them, so they will know they need not fear us."

Bob and Sarah Graham were having a desperately good time. It was September of 1951 and the papers were full of news about the brilliant landing of US Marines at Inchon. Bob was a Marine private with two days left of the thirty days' leave they had given him, between boot camp and disembarkation for Korea. Sarah had been Mrs. Graham for three weeks.

Sarah poured some more bourbon into her Coke. She wiped the sand off her thumb and stoppered

the Coke bottle, then shook it gently. "What if you just don't show up?" she said softly.

Bob was staring out over the ocean and part of what Sarah said was lost in the crash of breakers rolling in. "What if I what?"

"Don't show up." She took a swig and offered the bottle. "Just stay here with me. With us." Sarah was sure she was pregnant. It was too early to tell, of course; her calendar was off but there could be other reasons.

He gave the Coke back to her and sipped directly from the bourbon bottle. "I suppose they'd go on without me. And I'd still be in jail when they came back."

"Not if—"

"Honey, don't even talk like that. It's a just cause."

She picked up a small shell and threw it toward the water.

"Besides, you read the *Examiner* yesterday."

"I'm cold. Let's go up." She stood and stretched and delicately brushed sand away. Bob admired her long naked dancer's body. He shook out the blanket and draped it over her shoulders.

"It'll all be over by the time I get there. We'll push those bastards—"

"Let's not talk about Korea. Let's not talk."

He put his arm around her and they started walking back toward the cabin. Halfway there, she stopped and enfolded the blanket around both of them, drawing him toward her. He always closed his eyes when they kissed, but she always kept hers open. She saw it: the air turning luminous, the seascape fading to be replaced by bare metal walls. The sand turns hard under her feet.

At her sharp intake of breath, Bob opens his eyes. He sees a grotesque dwarf, eyes and skull too large, body small and wrinkled. They stare at one another for a fraction of a second. Then the dwarf spins around and speeds across the room to what looks like a black square painted on the floor. When he gets there, he disappears.

"What the hell?" Bob says in a hoarse whisper.

Sarah turns around just a bit too late to catch a glimpse of Three-phasing's father. She does see Nine-hover before Bob does. The nominally-female time-caster is a flurry of movement, sitting at the console of her time net, clicking switches and adjusting various dials. All of the motions are unnecessary, as is the console. It was built at Three-phasing's suggestion, since humans from the era into which they could cast would feel more comfortable in the presence of a machine that looked like a machine. The actual time net was roughly the size and shape of an asparagus stalk, was controlled completely by thought, and had no moving parts. It does not exist any-

more, but can still be used, once understood. Nine-hover has been trained from birth for this special understanding.

Sarah nudges Bob and points to Nine-hover. She can't find her voice; Bob stares open-mouthed.

In a few seconds, Three-phasing appears. He looks at Nine-hover for a moment, then scurries over to the Dawn couple and reaches up to touch Sarah on the left nipple. His body temperature is considerably higher than hers, and the unexpected warm moistness, as much as the suddenness of the motion, makes her jump back and squeal.

Three-phasing correctly classifies both Dawn people as Caucasian, and so assumes that they speak some Indo-European language.

"GutenTagsprechensieDeutsch?" he says in a rapid soprano.

"Huh?" Bob says.

"Guten-Tag-sprechen-sie-Deutsch?" Three-phasing clears his throat and drops his voice down to the alto he uses to sing about the St. Louis woman. *"Guten Tag,"* he says, counting to a hundred between each word. *"Sprechen sie Deutsch?"*

"That's Kraut," says Bob, having grown up on jingoistic comic books. "Don't tell me you're a—"

Three-phasing analyzes the first five words and knows that Bob is an American from the period 1935-1955. "Yes, yes—and no, no—to wit, how very very clever of you to have identified this phrase as having come from the language of Prussia, Germany as you say; but I am, no, not a German person; at least, I no more belong to the German nationality than I do to any other, but I suppose that is not too clear and perhaps I should fully elucidate the particulars of your own situation at this, as you say, 'time,' and 'place.' "

The last English-language author Three-phasing studied was Henry James.

"Huh?" Bob says again.

"Ah. I should simplify." He thinks for a half-second, and drops his voice down another third. "Yeah, simple. Listen, Mac. First thing I gotta know's whatcher name. Whatcher broad's name."

"Well . . . I'm Bob Graham. This is my wife, Sarah Graham."

"Pleasta meetcha, Bob. Likewise, Sarah. Call me, uh . . ." The only Twentieth Century language in which Three-phasing's name makes sense is propositional calculus. "George. George Boole."

"I 'poligize for bumpin' into ya, Sarah. That broad in the corner, she don't know what a tit is, so I was just usin' one of yours. Uh, lack of immediate culchural perspective, I shoulda knowed better."

Sarah feels a little dizzy, shakes her head slowly. "That's all right. I know you didn't mean anything by it."

"I'm dreaming," Bob says. "Shouldn't have—"

"No you aren't," says Three-

phasing, adjusting his diction again. "You're in the future. Almost a million years. Pardon me." He scurries to the mover-transom, is gone for a second, reappears with a bedsheet, which he hands to Bob. "I'm sorry, we don't wear clothing. This is the best I can do, for now." The bedsheet is too small for Bob to wear the way Sarah is using the blanket. He folds it over and tucks it around his waist, in a kilt. "Why us?" he asks.

"You were taken at random. We've been time-casting"—he checks with Nine-hover—"for twenty-two years, and have never before caught a human being. Let alone two. You must have been in close contact with one another when you intersected the time-caster beam. I assume you were copulating."

"What-ing?" Bob says.

"No, we weren't!" Sarah says indignantly.

"Ah, quite so." Three-phasing doesn't pursue the topic. He knows that humans of this culture were reticent about their sexual activity. But from their literature he knows they spent most of their "time" thinking about, arranging for, enjoying, and recovering from a variety of sexual contacts.

"Then that must be a time machine over there," Bob says, indicating the fake console.

"In a sense, yes." Three-phasing decides to be partly honest. "But the actual machine no longer exists. People did a lot of time-traveling about a quarter of a million years ago. Shuffled history around. Changed it back. The fact that the machine once existed, well, that enables us to use it, if you see what I mean."

"Uh, no. I don't." Not with synapses limited to three degrees of freedom.

"Well, never mind. It's not really important." He senses the next question. "You will be going back . . . I don't know exactly when. It depends on a lot of things. You see, time is like a rubber band." No, it isn't. "Or a spring." No, it isn't. "At any rate, within a few days, weeks at most, you will leave this present and return to the moment you were experiencing when the time-caster beam picked you up."

"I've read stories like that," Sarah says. "Will we remember the future, after we go back?"

"Probably not," he says charitably. Not until your brains evolve. "But you can do us a great service."

Bob shrugs. "Sure, long as we're here. Anyhow, you did us a favor." He puts his arm around Sarah. "I've gotta leave Sarah in a couple of days; don't know for how long. So you're giving us more time together."

"Whether we remember it or not," Sarah says.

"Good, fine. Come with me." They follow Three-phasing to the

mover-transom, where he takes their hands and transports them to his home. It is as unadorned as the time-caster room, except for bookshelves along one wall, and a low podium upon which the volume of *Faust* rests. All of the books are bound identically, in shiny metal with flat black letters along the spines.

Bob looks around. "Don't you people ever sit down?"

"Oh," Three-phasing says. "Thoughtless of me." With his mind he shifts the room from utility mood to comfort mood. Intricate tapestries now hang on the walls; soft cushions that look like silk are strewn around in pleasant disorder. Chiming music, not quite discordant, hovers at the edge of audibility, and there is a faint odor of something like jasmine. The metal floor has become a kind of soft leather, and the room has somehow lost its corners.

"How did that happen?" Sarah asks.

"I don't know." Three-phasing tries to copy Bob's shrug, but only manages a spasmodic jerk. "Can't remember not being able to do it."

Bob drops into a cushion and experimentally pushes at the floor with a finger. "What is it you want us to do?"

Trying to move slowly, Three-phasing lowers himself into a cushion and gestures at a nearby one, for Sarah. "It's very simple, really. Your being here is most of it.

"We're celebrating the millionth anniversary of the written word." How to phrase it? "Everyone is interested in this anniversary, but . . . nobody reads anymore."

Bob nods sympathetically. "Never have time for it myself."

"Yes, uh . . . you *do* know how to read, though?"

"He knows," Sarah says. "He's just lazy."

"Well, yeah." Bob shifts uncomfortably in the cushion. "Sarah's the one you want. I kind of, uh, prefer to listen to the radio."

"I read all the time," Sarah says with a little pride. "Mostly mysteries. But sometimes I read good books, too."

"Good, good." It was indeed fortunate to have found this pair, Three-phasing realizes. They had used the metal of the ancient books to "tune" the time-caster, so potential subjects were limited to those living some eighty years before and after 2012 AD. Internal evidence in the books indicated that most of the Earth's population was illiterate during this period.

"Allow me to explain. Any one of us can learn how to read. But to us it is like a code; an unnatural way of communicating. Because we are all natural telepaths. We can read each other's minds from the age of one year."

"Golly!" Sarah says. "Read minds?" And Three-phasing sees in her mind a fuzzy kind of longing, much of which is love for Bob and

frustration that she knows him only imperfectly. He dips into Bob's mind and finds things she is better off not knowing.

"That's right. So what we want is for you to read some of these books, and allow us to go into your minds while you're doing it. This way we will be able to recapture an experience that has been lost to the race for over a half-million years."

"I don't know," Bob says slowly. "Will we have time for anything else? I mean, the world must be pretty strange. Like to see some of it."

"Of course; sure. But the rest of the world is pretty much like my place here. Nobody goes outside anymore. There isn't any air." He doesn't want to tell them how the air was lost, which might disturb them, but they seem to accept that as part of the distant future.

"Uh, George." Sarah is blushing. "We'd also like, uh, some time to ourselves. Without anybody . . . inside our minds."

"Yes, I understand perfectly. You will have your own room, and plenty of time to yourselves." Three-phasing neglects to say that there is no such thing as privacy in a telepathic society.

But sex is another thing they don't have anymore. They're almost as curious about that as they are about books.

So the kindly men of the future gave Bob and Sarah Graham plenty of time to themselves: Bob and Sarah reciprocated. Through the Dawn couple's eyes and brains, humanity shared again the visions of Fielding and Melville and Dickens and Shakespeare and almost a dozen others. And as for the ninety-eight percent more, that they didn't have time to read or that were in foreign languages—Three-phasing got the hang of it and would spend several millennia entertaining those who were amused by this central illusion of literature: that there could be order, that there could be beginnings and endings and logical workings-out in between; that you could count on the third act or the last chapter to tie things up. They knew how profound an illusion this was because each of them knew every other living human with an intimacy and accuracy far superior to that which even Shakespeare could bring to the study of even himself. And as for Sarah and as for Bob:

Anxiety can throw a person's ovaries way off schedule. On that beach in California, Sarah was no more pregnant than Bob was. But up there in the future, some somatic tension finally built up to the breaking point, and an egg went sliding down the left fallopian tube, to be met by a wiggling intruder approximately halfway; together they were the first manifestation of the organism that nine months later, or a million years earlier,

would be christened Douglas MacArthur Graham.

This made a problem for time, or Time, which is neither like a rubber band nor like a spring; nor even like a river nor a carrier wave—but which, like all of these things, can be deformed by certain stresses. For instance, two people going into the future and three coming back, on the same time-casting beam.

In an earlier age, when time travel was more common, time-casters would have made sure that the baby, or at least its aborted embryo, would stay in the future when the mother returned to her present. Or they could arrange for the mother to stay in the future. But these subtleties had long been forgotten when Nine-hover relearned the dead art. So Sarah went back to her present with a hitchhiker, an interloper, firmly imbedded in the lining of her womb. And its dim sense of life set up a kind of eddy in the flow of time, that Sarah had to share.

The mathematical explanation is subtle, and can't be comprehended by those of us who synapse with fewer than four degrees of freedom. But the end effect is clear: Sarah had to experience all of her own life backwards, all the way back to that embrace on the beach. Some highlights were:

In 1992, slowly dying of cancer, in a mental hospital.

In 1979, seeing Bob finally succeed at suicide on the American Plan, not quite finishing his 9,527th bottle of liquor.

In 1970, having her only son returned in a sealed casket from a country she'd never heard of.

In the 1960's, helplessly watching her son become more and more neurotic because of something that no one could name.

In 1953, Bob coming home with one foot, the other having been lost to frostbite; never having fired a shot in anger.

In 1952, the agonizing breech presentation.

Like her son, Sarah would remember no details of the backward voyage through her life. But the scars of it would haunt her forever.

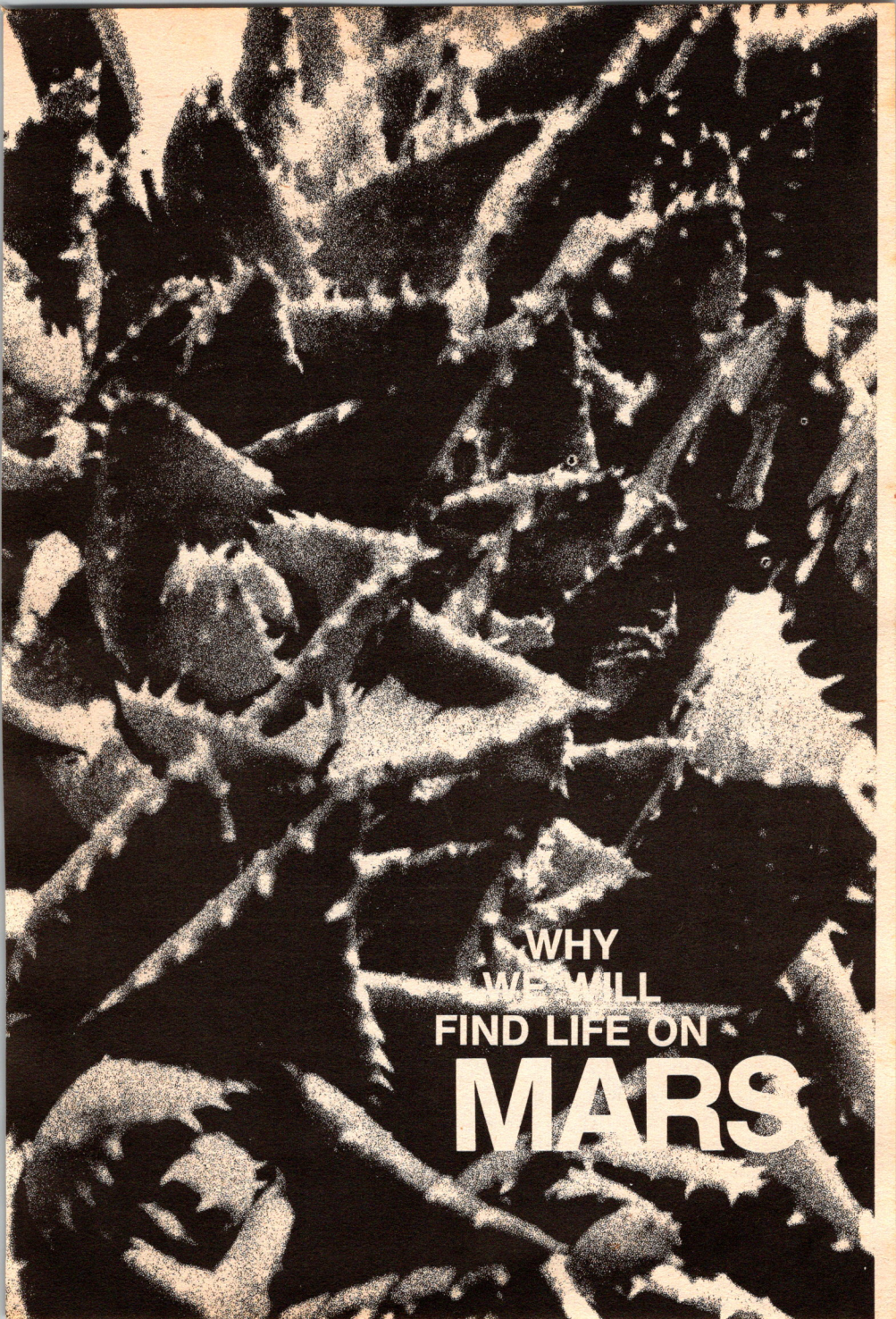
They were kissing on the beach.

Sarah dropped the blanket and made a little noise. She started crying and slapped Bob as hard as she could, then ran on alone, up to the cabin.

Bob watched her progress up the hill with mixed feelings. He took a healthy slug from the bourbon bottle, to give him an excuse to wipe his own eyes.

He could go sit on the beach and finish the bottle; let her get over it by herself. Or he could go comfort her.

He tossed the bottle away, the gesture immediately making him feel stupid, and followed her. Later that night she apologized, saying she didn't know what had gotten into her. ■


WHY
WE WILL
FIND LIFE ON
MARS

In our December 1974 issue, we pointed out the problems of finding life that the Viking landers face. Now for the opposing view . . .

Bob Buckley

The rugged, high-walled valley was wreathed in plumes of steam. Wispy curtains of mist danced in the wind, startlingly white against the velvet purple-black hue of the sky. The tiny sun sparkled off the ground-hugging clouds, off the water-filmed stones and shallow pools that bubbled furiously. Gouts of boiling water vomited up from the volcano-like vents of the geyser mouths. These stertorous exhalations of water and steam splashed and roiled across the mounds of eroded stone, flooding the shallows anew at frequent intervals, drowning the crusted mats of pale green algae.

On the nearest mat a stick-like figure was strolling at a curiously slow pace, as if it were a wind-up toy whose spring had run down. The creature was insectoid in nature, its body divided into head, thorax, and abdomen. It wore a hard, rough-surfaced cuticle that was as dark as the sky. Lacking wings, its hindmost pair of limbs were enlarged into jumping legs. The remaining four legs were walking members ending in long, splayed toes edged with a fringe of tiny hairs. Its head was bug-eyed and small, with long wisps of antennae casting out in front of it, searching for holes in the algae.

The creature paced carefully across the soggy mat on its three pairs of legs, probing here and there with a long, extended proboscis, a tube which it thrust deep into the algae at intervals, sucking at the masses of bacterial scum that had collected beneath the algae, protected from the sun.

It was not the only prober. Others of its kind were engaged in similar tasks, while smaller scavenger insectoids scuttled about the shore, carefully avoiding the gummed snares spun in concentric loops among the rocky banks of the steaming pools. Only one of the net-tenders could be seen, a crab-like creature covered with long spines that thrust like chitinous lances from the mouth of its silk-lined den.

The scene was one of tranquility . . . unnatural tranquility. Something was missing.

Then, quite abruptly, the missing element appeared.

A pair of globed eyes rose above

a fragment of stone balanced precariously up the lip of a ledge. The ledge jutted from the west wall of the valley, a sandstone face polished to smoothness by savage windstorms.

The eyes remained motionless for a long time. But one got the impression that they were studying the pools below and the unhurried movements of the browsers plodding across the algae mats.

At last the utterly cold gaze selected one of the "long beaks" as its target. This browser had chosen to graze near the edge of a pool—a pool which lapped very close to the valley wall. The bank was a narrow shoulder of rust-tinted travertine. The damp stone glistened with rainbow colors in the sunlight.

Its prey selected, the predator rose from concealment and climbed atop the stone where it perched and poised itself for the killing leap. Its long jumping legs tensed beneath the tube-like abdomen. Four other walking legs clutched at the stone with bifurcated claws. The barrel of thorax joined the head with a long, segmented neck. The head itself was fearsome, all staring eyes and long, blade-like mandibles, useful for seizing and holding prey, holding it still so that the long sucking tube of tongue could bore through the cuticle to liquefy the flesh and extract it, preserving the precious juices from the always thirsty air.

The browser on the mat continued to stroll in fatal unconcern. It had not seen the predator. And it did not see it spring, to float in a long arc toward the pool, long legs outspread to take up the shock of landing.

But neither did the predator see the long filament that came drifting down from the summit of the cliff. A coil touched it lightly on its abdomen . . . and stuck. The leap turned into a twisting fall. The predator became more and more tangled with its struggles.

Then the filament came to rest against the cliff. Slowly it began to drag itself up again, as if it were being reeled in. Fragments of sandstone adhered to the gummy string.

The predator still struggled, but not violently. It was a slow creature unused to haste.

The string crawled over the lip of the cliff with its load of salvage and vanished. Below, on the mats, the browsers continued their dull existence, prowling among the steamy mats.

Here we have a drama in a washtub, for none of our players were larger than the end of your finger. So much for imaginings. The ending you can guess. The gummy string might have come from another predator, or a space probe. The choice is yours, for this is Mars.

Appearing in the December 1974 issue of this magazine was an excellent article on this fascinating

planet that has baffled humanity for years. Unfortunately, the picture of Mars that was created was rather monolithic. Yet Mars is a very different beast from the Moon or Mercury, worlds which are monolithic in nature, having but one possible environment governed by a cyclic set of conditions.

As a naturalist, a writer, and one who still views Mars with hopeful expectations, I'd like to state why I believe we *will* find life on Mars.

Consider for a moment the multiplicity of life-forms that dominate our planet by filling every possible environmental nook and cranny. Where the land is hostile, the climate difficult, there may still exist microclimates able to support mosses, lichens, bacteria, and even insects. There is no one climate on Earth, no single environment, but rather a jigsaw pattern made up of many supportive niches. It is this principle that makes the "hibernating planet" concept unrealistic.

Life is opportunistic. If the entire population of a world, bacteria to bugs, were to curl up for a long winter's nap, you can bet that there would be species with insomnia which would quickly discover that they could live quite comfortably dining off their slumbering neighbors.

Human beings are a large life-form. We tend to think of climate in gross terms: thunderstorms, droughts, spring floods. But there are countless microclimates that pass beyond our notice simply because they are so small. To discover what I mean, merely turn over a stone in a forest. Look at the apparently bare soil with a magnifying glass. You will find minute crustaceans, insects, dependent upon the gross climate to some extent, yet their world is one of moist soil. They only venture from beneath their stones at night.

Other microclimates can be found in the dripping darkness of a limestone cave. Its quiet pools of icy water support blind fish, newts, pale crustaceans, and other tiny creatures, all dependent on nutrients washed in from the outer, sunlit world.

Even in the dead of winter the hot springs of Yellowstone achieve a tropic status. There are no seasons in the pools. The Earth could be wrapped in the brutal clutch of a glacial epoch and the springs might still shelter their specialized families of life.

These springs are fed by waters percolating through deep strata bounded by layers of impermeable stone. Their heat is generated by the warmth of the Earth itself. When the temperature and pressure reach a certain limit the water flashes into steam, bursting up through channels worn in the stone to form geysers. Sometimes the channel is shaped in such a manner that pressure remains low. Here the waters surge to the surface more

gently, bubbling over into pools and mudpots.

Hot springs are worldwide. All that is needed for their appearance is an aquifer and a subsurface source of heat. The pressure of the superheated steam will force an exit to the surface, widening the natural fissures in the stone. Hot springs even exist 15,000 feet up, on the frigid slopes of the Himalayas, in Asia.

These pools of sometimes boiling water support a curious assortment of life-forms, even though the temperature of the water (at the exit aperture) may be 200 degrees Fahrenheit. As the water flows away from its underground source it cools. How swiftly this cooling takes place depends upon the mean temperature of the gross environment. Usually, even in winter, the air is heated a few inches above the water.

It's usual to view the inhabitants of various ecological niches in pyramid form. This delineates the various populations. As for the hot spring, the algae are the base of the pyramid. They form large colorful mats that coat the flow channels and pools. The variety of algae is determined by the temperature of the water. Blue-green algae, probably because they are more simple in structure, can endure higher temperatures than green algae (which may not be green). Green algae typically grow in water 20 degrees cooler.

Bacteria are less noticeable than algae in the pools, but these colonies are nearly as populous as the algae. They grow beneath the algae mats, forming a brownish, orange scum. Both the algae and bacterial colonies grow in V-shaped streamers, since the water in the center of an effluent channel retains its heat longer and thus drags out the thermal environments.

The banks of the flow channels support a few higher forms of plant-life. Vascular plants (having a water transport system within their stalks and individual leaves) may grow in the warmed soil even in the coldest winter, although they cannot grow out of the thin layer of heated air. Some even bear flowers.

The animal life is more varied. Within the springs can be found representatives of protozoans, arthropods, nematodes, crustaceans, molluscs, and insects. Each has its own supportive niche based upon exploitation of the algae mats. The most apparent life-form about the springs is the Ephydrid fly. They fly from mat to mat, keeping low, never leaving the warmed air over the springs in winter.

Some animals do not live within the spring, but are drawn to it because it offers an easier existence in winter. These include herbivorous mammals, and birds, which sometimes nest on the warmed gravel beds. But these are interlopers in the real world of the spring.

Insects and arthropods are actually the summit of this life pyramid. Spiders tend snare lines that glisten about the edges of the mats, hoping to entrap the buzzing Ephydrid flies which not only eat the algae, but lay their eggs within them. The green mats are alive with their squirming larvae. Dragonflies drone along the channels, and across the steaming pools, snapping incautious Ephydrids out of the air, crushing them in their mandibles.

And like mood music to the scene, there sounds the ceaseless bubbling and sighing of the vents. At intervals geysers send up plumes of steam, and cascades of boiling water shoot high into the air, while the rocks groan with the effort.

The hot spring is but one example of a microclimate. Another can be found in the dripping channels of limestone caverns. There are countless others, but as this article is devoted to Martian conditions we should ignore all but those which might exist on the Red Planet. For that reason we shall concentrate on the hot spring, cavern, and tundra formations.

And it should be remembered that even our world has its dead areas. Should the Viking probes descend upon one of the barren high plateaus near the coast of Antarctica their laboratories would detect no life at all, only the possibility for life.

Of course, we know the Earth is far from dead. Life can be found on the verge of the stratosphere (wind-lofted spiders riding their filamentary sailplanes) and miles deep in sunless waters on the ooze-covered floors of abyssal canyons. These Antarctic plateaus are but tiny islands of sterility amid a veritable sea of life.

Yet, on Mars, the situation must surely be reversed, and so we should expect to find tiny oases of life dotting a hostile, worldwide desert.

Imagine the Earth under current Martian conditions, its seas evaporated and deposited with most of the atmosphere in massive polar caps. The continental masses would now be immense plateaus, arid, wind-scoured and dead. The sea bottoms would be buried under deep mounds of precipitated salts. The air pressure would be more favorable in these deeps, but what can live on salt?

Actually we have an answer to that. Six million years ago the Mediterranean was a dry desert basin. The Strait of Gibraltar had yet to open in that time, and the Mediterranean took most of its drainage from the northeast. But when the Carpathian Mountains rose this drainage was cut off. At this time, seven million years ago, the Mediterranean Basin was not a true sea, but a series of large, brackish lakes, one of which—the Balearic—was as large as the Black Sea. When these lakes evaporated they left behind

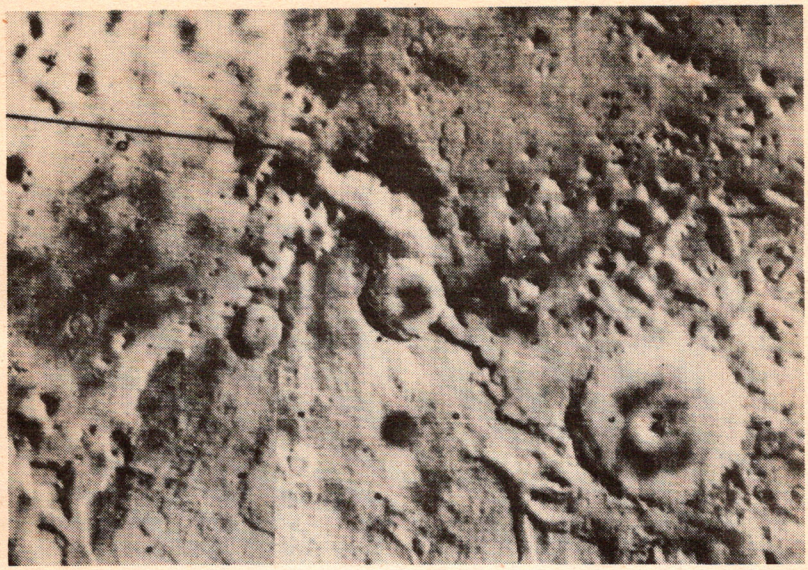


FIGURE 1. Ismenius Lacus and Vicinity. This remarkable photo from Mariner 9 shows ice clouds (white ripples obscuring surface) and an ancient volcanic landscape much dissected by erosion. The branched canyons are roughly fifty kilometers wide. They were formed by the movement of liquid water flowing into the northern-most limit of the Mare Acidalium. The isolated plateaus are similar to features in the American Southwest, being remnants of a level plain. (NASA)

salt deposits that were 5,000 feet deep.

Yet even this wasteland supported mats of blue-green algae and populations of ostracods (a microscopic crustacean) and other saline-adapted organisms.

So, you might ask, what has the Mediterranean Basin to do with Mars? Well, it was once an area of small, brackish seas that suddenly (a million or so years in geologic terms is very sudden!) dried up. And it is to just such an area that our Viking probes will be traveling. Chryse is a lowland at the mouth of the equatorial canyon system. Drainage features abound. There is evidence of recent geologic activity and the melting of subsurface ice deposits. North of Chryse lies the vast depression of the Mare Acidalium. In a more benevolent time the Mare might have received melt waters from the north polar cap, making it plausible, if not possible, that Mare Acidalium just might have been named correctly—it might once have been a Martian sea.

Seas on Mars? That isn't as preposterous as it might sound. Mars

suffered the same fiery birth-pangs that our own world endured. As the planet cooled and formed a crust of lighter granites, volcanic activity continued to spew out CO_2 and water vapor. Because of the dense, new-formed atmosphere, this water vapor began to condense. The rains raced across the barren landscape and collected in shallow lakes which eventually grew into deeper seas filling great meteoric wounds such as the Hellas Basin.

To better know this ancient Mars we should examine the Earth of four billion years ago.

It was hot. The atmosphere was dense, made up of CO_2, nitrogen, water vapor, and considerable quantities of methane and ammonia. The land was raw, desert-like. There were no useful soils, just sandy gravels. Plants create soil, and there were no plants as yet.

When it rained, the runoff from the unvegetated continents was a brown slurry of sediment and dissolved minerals rich with ferric ions. When a wind rose, the sky turned rust-red with dust.

All this sounds unwholesome in the extreme, yet this was the cradle of life.

The precise happening is still theory, but even today simple proteinoids can be formed by splashing a powder of amino acids on a chunk of hot lava and wetting ev-

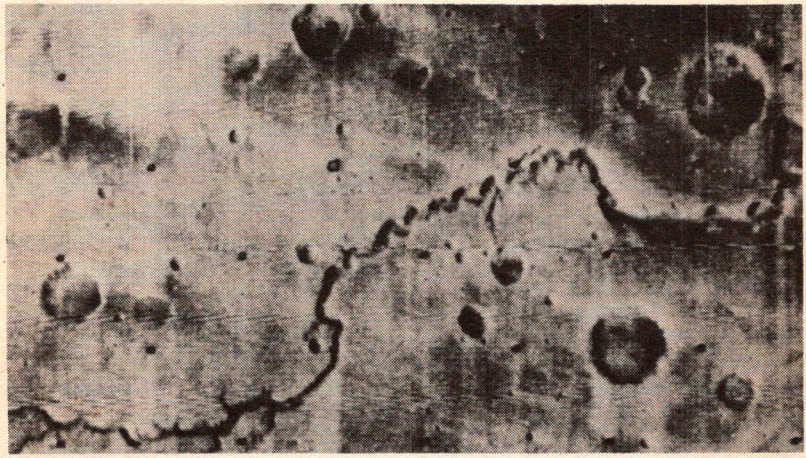


FIGURE 2. A "Fossil" River. This feature is five kilometers wide and nearly as long as the Mississippi. The many tributary branches imply that the landscape north of the Argyre Basin was once a well-watered highland subject to rainfall, or more likely, snow. (NASA)

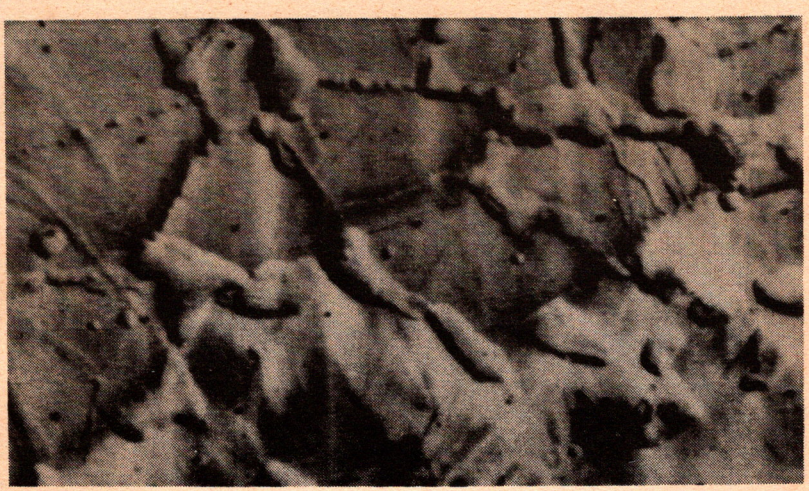


FIGURE 3. Noctis Lacus, a Volcanic Province. This is apparent because the channels have no tributaries. The great canyons are probably the result of widening fault rifts and collapsed lava tubes. The lower floors of these channels may well hold hot springs and tiny oases of life. (NASA)

erything down. The result is a gooey mess of self-organized microspheres. Take this mess, put it in a protected environment where it cannot be oxidized or eaten by a more complex molecular creature, wait patiently for more millions of years than it is safe to imagine, giving natural selection time to operate, and you end up with single-celled life. Why so long? Even the simplest algae are constructed of thousands of proteins linked in specific arrays. Building this out of "primordial soup" through natural selection spurs one to think of that hellish room full of typewriter-wielding monkeys blindly attempting to recreate the complete works of Shakespeare.

The earliest living cells were anaerobic, fermenting sugar-like molecules for cellular energy. These were replaced in dominance by cells exploiting anaerobic photosynthesis. This was a major step in that it freed the floating cells from their chancy dependence on nutrients suspended in their liquid medium. Now they could live off the sun.

An interesting effect of this lifestyle was that the ferric ions in the waters were used as an oxygen sink. The cells combined oxygen with the ferric ions and iron was precipitated to give rise to the Precambrian banded iron formations.

Iron deposition ceased 1.8 billion years ago on Earth. That does

not mean that no more iron was laid down as sediment—it was, but living creatures abruptly removed themselves from the process. The anaerobic bacteria had discovered a new trick. Now they released their waste oxygen directly into the atmosphere. This was a major change, for the atmospheric balance began to shift after millions of years. Free oxygen began to build up. Carbon dioxide was consumed and oxygen generated to replace it, and all this activity was due to thin layers of green scum coating mudflats, and floating cloud-like in the shallow seas.

The amount of oxygen in the atmosphere did not reach what we would consider normal amounts until the mid-Jurassic. Interestingly, this coincides with the appearance of primitive mammals, which need vast amounts of oxygen for their advanced nervous systems.

What about Mars? Did it follow the same pattern? Even though this is speculation, I believe later expeditions to Mars will discover that it did. What has been described so far is an automatic cycle. If all the ingredients are there, the reactions will follow.

So let's go back to the lakes and mudflats of ancient Mars. As the Martian equivalent of blue-green algae continued to produce oxygen, this atmospheric change allowed the next stage in cellular evolution . . . a Martian version of green algae, which is sophisticated enough to have a true nucleus. It reproduces not by division, but by sexual division, meaning a greater variety in offspring and more possibilities of adapting to a changing environment.

On the Earth this proved to be a monumental step. It had taken two billion years to progress from self-organized microspheres to anaerobic and aerobic algae, one of them possessing a nucleus. But in the next billion years that algae managed to differentiate into protozoans, metazoans, and eventually to an aggressive, smugly intelligent creature who likes to toy around with nuclear power and who builds spaceships in his spare moments—when he isn't trying to overawe his neighbors.

It is here that Mars diverges from the Earth. It has developed an inclement climate, one described quite well in the Hoagland article. The question is: did Martian green algae have time to develop sexual reproduction? If they did not, then we will probably find nothing more complex than a protozoan. Martian plant-life will be limited to fungi and lichens.

But, if sex did come to Mars, we can have a bit more hope.

True, natural selection will have been handicapped by the long, very drastic "winters." But there must be enclaves of living creatures spotted over the planetary surface, the oases of life mentioned earlier, sheltering around hot springs, in

caves, and in some equatorial valleys where conditions are similar to those in the high arctic of Alaska and Canada, and on the summits of some mountain ranges.

Is it possible for a hot spring to exist on Mars? There must be two key features, geologic activity which supplies the heat source, and a store of ground water.

The Mariner photos have shown us much evidence for recent geologic activity: massive volcanic structures, rift valleys which are evidence for tectonic movement of crustal plates and which imply a molten core.

The Sahara Desert has many artesian springs and in many ways is a possible model for Mars. Four hundred and fifty million years ago, because of continental drift, it was the center of the South Polar Cap. Since then it has been covered by tropic forests which gradually gave way to the present desert conditions. But despite the aridity of its surface, the Sahara retains large stores of water locked within permeable strata. These lie in seven large basins: the Fezzan, the Great Western Erg, the Great Eastern Erg, the Tanezrouft, and the Western Deserts of Egypt, Chad, and Niger. The waters so trapped are under pressure, being squeezed between layers of impermeable stone. If an opening appears in these impermeable layers the water is squeezed out, forming a spring.

Perhaps the most interesting feature of these springs, and there are many of them, is that the water that issues from them has entered the Saharan water table as much as two thousand years ago or longer, during the last Saharan Pluvial period. Such recharging of the aquifer strata relates to the eccentricity of the Earth's orbit, and to periods of glaciation. For an interval just after the retreat of a major glaciation the Sahara receives much more rainfall, and this finds its way into the water table. The last such period of rainfall was ending just as the Mediterranean civilizations of four thousand years ago were reaching their peak.

Can there be similar artesian structures on Mars? Possibly, since some photos show chaotic terrain, a landscape deformed by melting ice buried beneath the surface. But evaporation must be a problem. In the Sahara Desert evaporation has an effect to a depth of twenty meters down. This has been figured as a loss of three thousand cubic meters of water per year per square kilometer. This would probably be much greater on Mars due to the scarcity of atmosphere and the tendency of a liquid to vanish in such a near vacuum. Only within the Hellas Basin is the air pressure great enough to allow liquid water to exist. Elsewhere, it would "boil" into a gas very quickly.

What if, during the periods when Mars "defrosts," a certain amount of free water percolates into deep

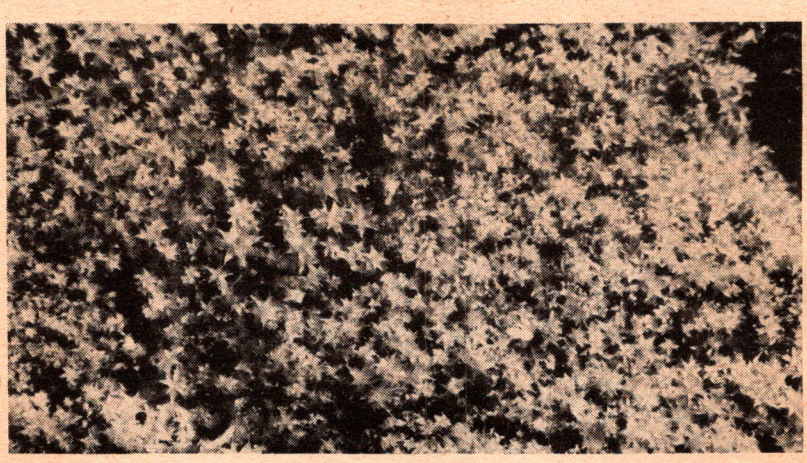


FIGURE 4. Desert Moss. For the greater part of a year, the individual plants of this moss carpet are dry, brown, pinhead sized "mummies." But after a winter rain each will rapidly unfold to create the miniature jungle shown here.

strata, recharging a water table? In areas of geologic activity this trapped water might well give rise to springs such as are found on Earth. From the terrestrial models we know what sort of environment these features create, leaving only the problem of devising the Martian creatures that might inhabit such a spring.

And this brings up the question of alien creatures and just what they might look like. Science fiction writers have been playing with blobs, intelligent spiders, worm people, and other such creations for years. But will alien life really be that much different from what we know here on Earth?

Certainly an animal's shape is dictated by the medium of its environment and the method of its survival. As an example, the shark, icthyosaur, and dolphin each evolved separately, from very different stock (*i.e.*, fish, reptile, and mammal), at intervals separated by millions of years. Yet all three animals look very much alike. They differ only in fine detail, and basic internal complexity.

Thus, if an animal were to adopt an insect's life-style, it would probably look very much like an insect, no matter what it had evolved from. The precise shape of that insect would depend upon its manner of survival (*i.e.*, a burrowing scavenger would look like an ant, or a beetle, et cetera). The difficulty with this theory is the variety of shapes that invertebrates assume. The basic insectoid shape is there, but sometimes obscured under de-

tails of adaptation. Parasites are another story. Because a parasite depends on another creature for its survival, it can look like anything at all, so long as the shape is uncomplicated.

It would probably be safe to assume that any Martian life will be recognizable as life (we won't be happening across intelligent rocks, or glowing gas creatures) and though it will look strange, it shouldn't be any stranger than what we could find right now dwelling upon a coral reef, or in the mud of a rain forest.

One can almost predict the plants that might be found. Simple plants, unlike the more advanced varieties, have changed very little during millions of years of existence. A brief cataloging of terrestrial plants that might be found on Mars would have to begin with bacteria.

These are the simplest plants. They appear in tremendous variety, and can exist in anaerobic and aerobic environments. If Mars has bacteria, the Vikings should be able to document it for us. Even if they were hibernating, a bath in the proper nutrient solution would wake them up!

Fungi are multiple-celled, but still very simple. A Martian mold or mushroom is not implausible, though its fruiting bodies (what is erroneously called THE mushroom) may take other forms than what we are familiar with.

Lichens are a symbiotic relation-

FIGURE 5. A Cactus Colony. These succulents have adopted a shape and mode of reproduction common to both desert and arctic plants. By clumping they manage to conserve heat and lessen the drying effects of the wind. Reproduction is by buds and runners which mature into juvenile plants about the base of the adult.

ship between algae and fungi which form many colored, scab-like splotches on boulders and trees, growing so slowly that years may not reveal their spread. Other varieties of lichen dangle from dead tree limbs like feathery tendrils of pale green flesh, existing off the decaying matter of the wood.

Another lichen, Reindeer Moss, provides the staple fodder for the Caribou. Yellow brown, this lichen does appear rather moss-like, yet it is a true lichen, growing upon the upper surface of the tundra, a vast plain of frozen mud whose barren vistas sometimes stretch from horizon to horizon.

Mosses are primitive land-plants. They require moisture, yet some are able to grow in the driest of deserts simply by remaining dormant and desiccated until a chance rainstorm, savage and brief, douses them; whereupon they unfold into pinhead-sized dots, forming delicate carpets a few inches square.

The higher plants with vascular systems and flowers would find present-day Mars a harsh, perhaps deadly environment. To find terrestrial examples that might be able to survive under those conditions we must look in the desert, the arctic areas, and on the summits of high mountains.

The desert, dead at first glance, supports countless tiny plants. They are most apparent after a spring squall. Then "belly plants" seem to sprout from every possible location. These flowers grow to term in a few short weeks. Their seeds lie dormant for several seasons sometimes, before heeding the call to mature, and when they do so, they dot the desert floor with minute purple, pink and white blossoms so small that one must lie flat to study them, hence their name "belly plants."

Both the Arctic and Antarctic regions are deserts in their own right, despite their blankets of ice and snow.

The Antarctic region comes the nearest to being "dead," although its deep seas are a direct opposite, being one of the richest stores of plankton, krill, and fish on our planet. But the land itself is deadly. Only on one small area of shoreline do green plants exist, and these are stunted grasses and a relative of the lowly geranium.

The Arctic is more hospitable, its tundras and mountain valleys have much more varied flora. The same is true of mountain climates.

Both Arctic and Alpine plants have distinct characteristics. Some are able to generate heat by metabolic reactions, melting the snow about their stems to thrust leaves and blossoms into the open air. And all of these specialized forms have adopted thick, short stems; dark green leaves with waxy or fuzzy surfaces; tiny cells; and rich sap (anti-freeze). None grow very large, and their root systems are thick taproots or shallow, dense

FIGURE 6. A Cushion Pink. It has been partially cut away to show the dense interior network of stems. The leaves form an interlaced canopy overhead. A slow-growing, long-lived perennial, the Pink blooms only after its massive taproot is established in the loose gravel of the mountain slope. This may take ten years of patient growth. Full bloom usually occurs after another ten-year period. The Andean Cushion Plant (unrelated to the North American variety) may grow three to four feet across.

mats which exploit the noontime melting of the upper surface of the tundra.

All of these features serve to combat extreme cold, drying winds, and extreme aridity, since these areas, despite a preponderance of ice and snow, provide the plants with little usable water.

Perhaps one model for a Martian flowering plant might be the Cushion Pink of the High Andes and Rockies. The Pink is a small, many-leaved plant whose shape is dome-like, a dark green pillow dotted with tiny flowers. Its leaves are small and they overlap, like scale-mail. Drying winds flow over the plant because of this shape, and the meshed leaves form a heat trap. The interior of the Pink, a network of thick stems, may be twenty degrees warmer than the outside air. Alpine insects take advantage of this, taking up residence within the Pink's sheltering dome. As they crawl about they manage to cross-fertilize the Pink's blossoms.

Sometimes it is said that Earth has an "easy" environment for life. In one sense this is true, when the Earth is compared to Mars or Venus, and we judge both worlds with chauvinistic eyes attuned to our own requirements.

Yet there is no "easy" environment, not really. All life must be in competition with other forms of life, not merely with the environment. So, if we were to transport a Cushion Pink to Mars and expect it to live we would probably have to modify it somewhat. It would need a gas-tight cuticle, since there does not seem to be oxygen in the Martian atmosphere, and plants require oxygen at night, when photosynthesis ceases. The oxygen manufactured during the day could not be

squandered into the open air, it would have to be saved in vacuoles.

This adaptation would not only be useful to the plant, but to whatever predatory animal decided to devour the plant. Not only would the animal find nourishment, but the breath of life itself, which might also be stored away in gas-tight chambers within the animal's body.

If this seems farfetched, consider the spider which lives in ponds by trapping bubbles of air which it then tows after it as it climbs down to the bottom of the pond on a plant stem. And whales, seals, and otters are able to live off oxygen stored within their lungs and blood for intervals from ten minutes to fifty minutes. The same is true of some land-forms, like the hippo and alligator, who must forage on river bottoms.

What if Martian animals were not air-breathers, but air-stealers? The atmosphere of Mars would be irrelevant to such creatures, who would have discovered long ago that it was undependable as a source of oxidants. All that is required for such a development is a basic stock of animals and plants which reproduce sexually (and thus are highly adaptive to changing conditions) and the time for natural selection to operate on this stock.

A third ingredient would be a source of water, and the evidence supports the existence of free water on Mars in the past, and the possible existence of water in the present in certain isolated geologic conditions, such as thermal areas underlying water-bearing strata.

What might such life look like? The lower forms, representative of terrestrial protozoans and simple metazoans could assume countless shapes too numerous to list in this short article. Over eighty thousand species of protozoans have been described scientifically and there are probably many more that are yet to be discovered sharing our world with us.

Because of this I will concentrate on the highest form of Martian life that seems likely; this being an insectoid creature. By insectoid I mean a creature arthropodal in nature. On Earth, arthropods are the most numerous and widespread of all creatures. They range in size from microscopic to over a foot long. Their most apparent feature is a rigid exoskeleton, and there are over a million species, all with their own curious adaptations to living.

The differences between Martian arthropods and the terrestrial varieties would probably be minor. Once again, they would have to have a gas-tight cuticle, and one immune to UV radiation, as well.

And there would be no flying forms, the air is just too thin. But the low gravity would encourage jumping, and jumping is nearly as useful as flying.

FIGURE 7. A Desert Succulent. It relies on its thick skin, blunt, stubby leaves, and a powdery coating on its leaf surfaces to endure the rigors of desert life.

The low gravity would also permit larger size than is possible here on Earth. The structural qualities of chitin keep terrestrial insects small. On Mars this limitation would be lessened somewhat. A Martian beetle two feet long would not be impossible.

But though a Martian bug might be larger than our bugs, it would surely be slower. Even stealing its oxygen, there would not be much to go around, nor would there be great stores of water or food. Desert environments are sparse, with the populations of animals very spread out. It has to be this way, the land will support only so many. Some plants resort to poisoning their immediate vicinities so that their own seeds will fail to sprout within a certain radius. All this would tend to select for a slower metabolism, meaning that on Mars life would rush past at a snail's pace. A Martian zoo would probably be quite boring to the average visitor because of this.

So this is Mars. Not dead, but very alive, even if sparsely. Perhaps we will not find it the spectacular world that Edgar Rice Burroughs envisioned, its dominant creatures being little more than giant bugs with thick hides and molasses-like reaction times. But the fact that there is life there at all should be the greatest wonder of them all, considering the climate of the planet.

All that is required to reveal Mars as a living world is for the Vikings to settle near one of the protected enclaves where the "Martians" are waiting out their long

winter. Let us hope that we get lucky on the first try, but also, let us remember that it wasn't until Mariner 9 went into orbit about Mars that the planet's true face was revealed to us. The equatorial rifts spanning an area as great as the North American continent were unknown up to then, despite four previous fly-bys and numerous television pictures returned to Earth.

We are searching for a needle in a haystack with the Viking shot, a needle that will be hellishly difficult to locate.

Yet it is also the most important needle that our kind will ever find short of contact with another intelligent race, because it will prove that we are not alone. ■

ABOUT THE AUTHOR

Bob Buckley is a technical writer for the Burroughs Corporation. When he isn't roaming the deserts and scrublands of Southern California, he indulges himself in free-lance photography and writing science fiction, including "Encounter Below Tharsis" and its sequels, which dealt with Martian life-forms.

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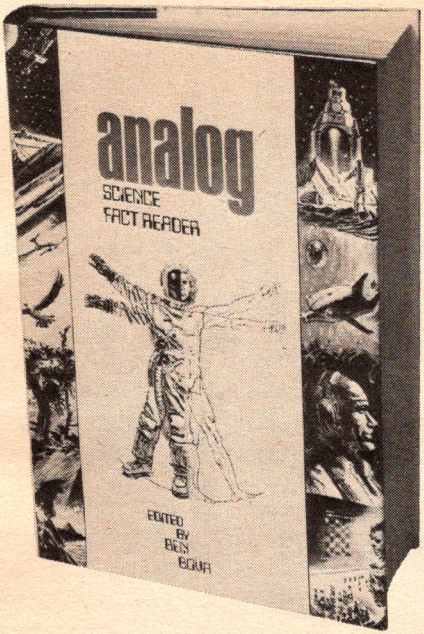

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If you wanted to bioengineer a critter to stand up to a harsh environment . . .

ROBERT S. RICHARDSON

I used to be a firm anti-planetary-life man. Being of a naturally unsociable and pessimistic disposition, I didn't relish the idea of a lot of other inhabitants cluttering up space. But recently after reading about a certain terrestrial animal—well, I am beginning to get a bit uneasy on the subject.

Since I am not a biologist, doubtless many such experts will immediately leap on certain remarks in my paper.

What terrestrial animal would seem to have the best chance of limited survival on the bare surface of Mars? By "limited" I mean a period of, say, a couple of years. I would put my money on a tiny creature called the water bear or Tardigrada.

First, I wish to emphasize that I am ruling out bacteria. Also the viruses, which are obligate parasites requiring some living substance for growth, which, in turn, must have other living substances for their growth, and so on, *ad infinitum*.

Here we are not especially concerned with the anatomy and life habits of the water bear, which can be found in most any elementary biology text. Maximum length of the water bear is about one millimeter, and usually much smaller. Their external form is shown in the figure accompanying this article. They remind you of some automobiles: it is hard to tell which is the back end and which is the front. If I have it straight, the right end of the creature shown in the figure is the head.

The water bears are free-living animals, found in all kinds of environments, such as damp moss, flowering plants, both ocean and fresh water, and sand. Some biolo-

gists say the sexes are separate. Others hedge on this delicate subject and call them "not distinct." Perhaps in some phase of their life cycle they are both male and female. For such tiny animals they have a fairly well-developed nervous system, with a "brain" consisting of a two-lobe ganglion, or concentration of nerve cells, and frequently eyespots. Apparently they are harmless creatures.

It is awfully hard to kill a water bear. Consider the following:

1. They have been kept alive for eight days in a vacuum.

2. They have lived for three days in the inert gas helium.

3. After several hours of room temperature, they have been exposed for several hours to a temperature of -272°C (-458°F).

4. After undergoing this ordeal they have revived again at room temperature!

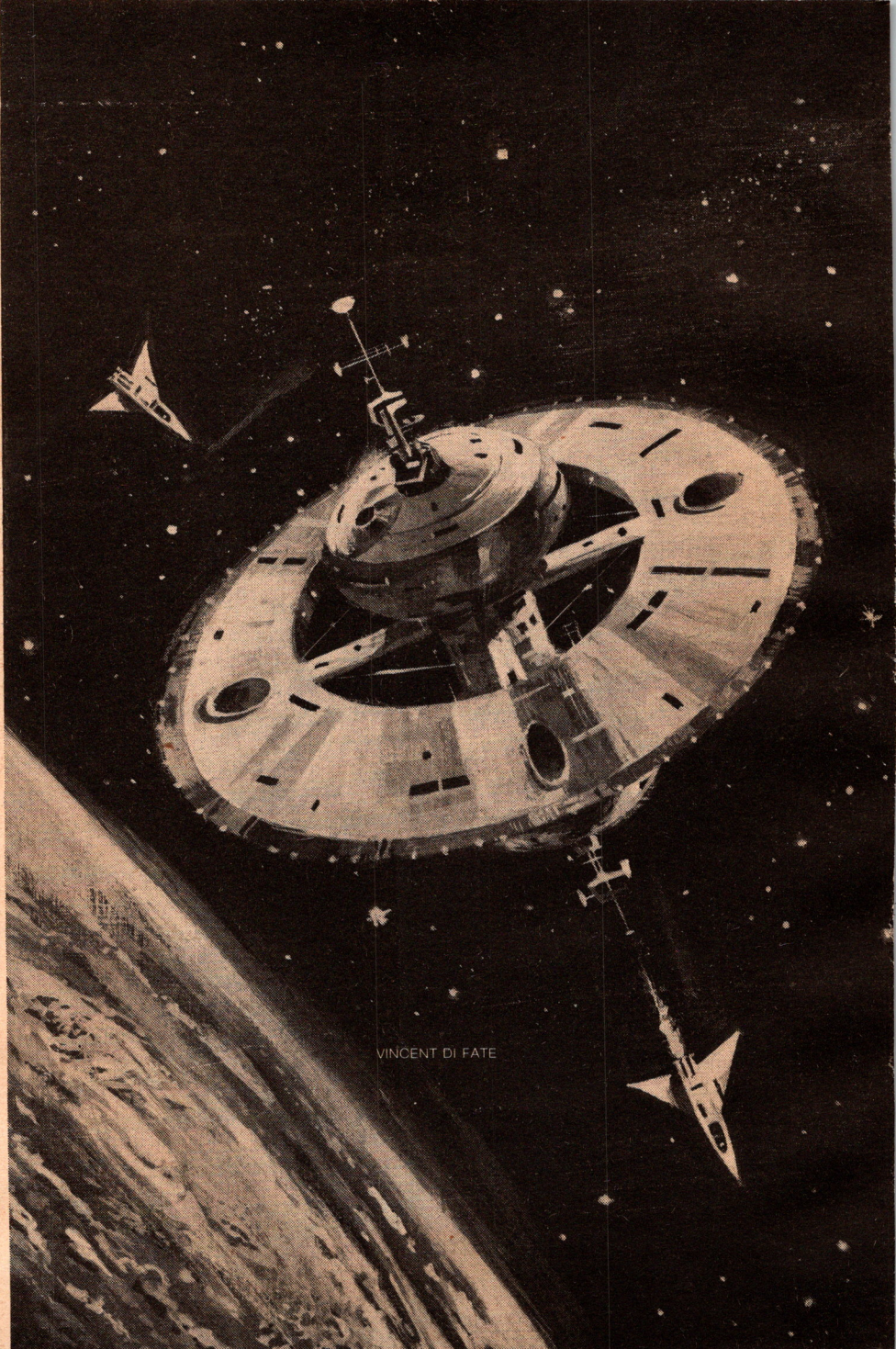
5. Still not content, biologists have left them in liquid air at -190°C (-310°F) for 21 months. Of these, 60 percent returned to life.

6. Specimens have been thoroughly desiccated, or "dried out,"* and left in that condition for 18 months. But after being transferred to water, after a couple of hours they were alive and swimming around.

So, after reading about the practically indestructible Tardigrada, I am not so sure about life in the universe. If asked, "Are we alone in space?" many astronomers, physicists and engineers, who know little more than I do on this subject, eagerly assure people that such must be the case.

As for myself, I would hedge more than most politicians. I would answer, "Well, maybe, depends upon what you mean. Of one thing I am sure: there are certainly extremely few planets with life-forms on their surfaces as complex and contradictory as those on the planet Earth." ■

*Among high, intellectual forms of life such as human beings, the expression getting "dried out," has a somewhat different connotation than when applied to the Tardigrada.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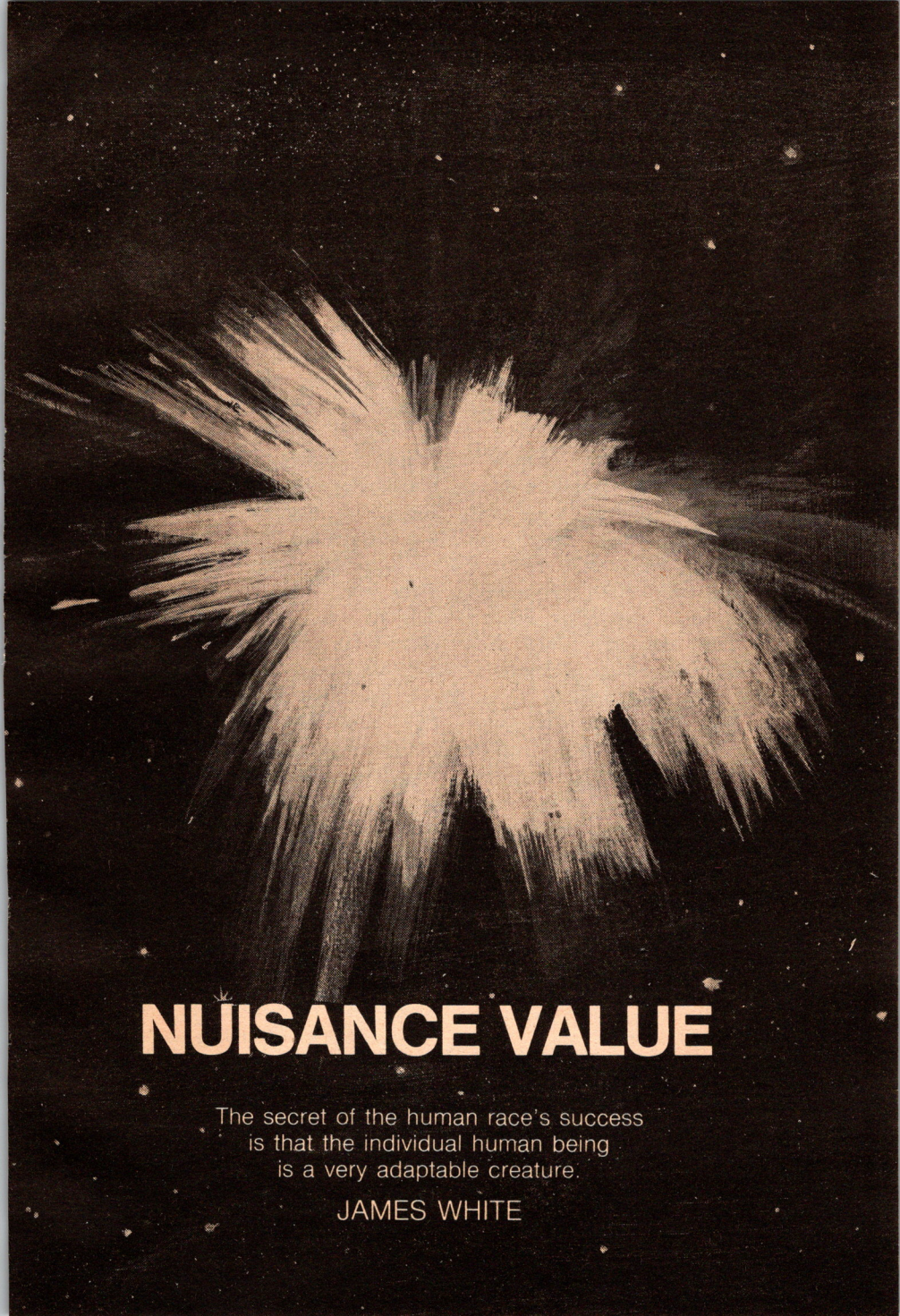

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The secret of the human race's success
is that the individual human being
is a very adaptable creature.

JAMES WHITE

The receptionist's veil was too thin to either muffle the respectful tone of her voice or hide the smile which accompanied the words as she indicated the door beside her and said, "Citizen Conlon apologizes for keeping you waiting. If you will relinquish your weapons, sir, you may go in now."

Barclay had been kept waiting for precisely two and one-quarter minutes.

A fair proportion of Barclay's life had been spent waiting in outer offices like this one while he tried to find a way around or through various kinds of organic barriers. These had ranged from the weakly-defended outer barricades thrown up by junior secretaries, which usually went down before a combination of persistence and an appeal for sympathy, to the rigid and impenetrable walls of silence which surrounded the highly-placed people who probably knew the answer or had their own reasons for concealing their ignorance. But today, for some strange reason, the barriers were of cobwebs and he had penetrated more deeply into the Department for Technological Reconstruction than ever before, seemingly without even trying.

He entered a small office made smaller by a large desk. On one side of the desk there was a wall TV and opposite it an unmarked door. The man behind the desk inclined his head formally until Barclay had taken the visitor's chair—respect, of a kind, for the aged was becoming fashionable again—after which he sat down again and stared at his visitor in silence.

Citizen Conlon was in his early forties, very conservatively dressed in brown coveralls with an orange scarf knotted neatly into his hair, which he wore long over his right ear. From the other ear was suspended a gold disc signifying that it was an offense punishable by death to challenge him to a duel, but Barclay's eyesight was not good enough to distinguish whether it was the symbol of law enforcement or medicine decorating the ornament.

If it was the former, Barclay could be in serious trouble.

"You are an extremely stubborn and persistent man, Citizen Barclay," said Conlon, in a tone which somehow managed to sound both friendly and critical. "You have been asking the same question since before I was born, but the answer you have been given has not satisfied you. You are without doubt the greatest single nuisance this department and those which preceded it have encountered. We deal with our fair share of crackpots, but you are a responsible, law-abiding, productive and apparently sane crackpot. I say 'apparently sane' because monomania of this order is always suspect."

Before he could respond, Conlon went on, "The answer given you was simple and well documented

with press cuttings. You were only twelve at the time, but you refused to believe it. Not only did you not believe it but you convinced your mother that it was not true. But you were young and possibly your own distress, rather than any rational process of deduction, made you disbelieve the story?"

"It *was* a story, then?"

"Please do not answer a question with another question," said the other sharply. "A story can mean a piece of newspaper reportage as well as a work of fiction. Well?"

This interview was like no other that he had experienced in the recent and distant past, Barclay thought worriedly. It was much longer than usual—as a rule he was kept waiting two hours and dismissed in two minutes. As well, the questions were coming from the person who should have been supplying, or trying to avoid supplying, the answers. He was beginning to feel as if he was undergoing preliminary interrogation by an investigating magistrate.

At what point did a long-term nuisance become an enemy of the State?

Barclay swallowed, then said, "I did not want to believe that my father had died at all, but then I found difficulty in believing that he had died in the fashion described . . ."

"A moment, please," Conlon broke in. "We are discussing an incident which happened nearly fifty years ago. Before proceeding it is necessary to identify the person concerned beyond any doubt. Is this a picture of your father?"

The wall TV screen lit with a full-color still picture of his father, spacesuited but with the helmet removed. The particular shot was not in Barclay's collection, probably because the publicity photos never showed his father looking so tired and tense—he was wearing his fussy look.

Barclay was unaware that he had been thinking aloud until Conlon said curiously, "What do you mean by 'He's wearing his fussy look'?"

"It was the way my mother described his expression when he was taking something very seriously," Barclay replied. "He . . . joked a lot and was great fun most of the time, but about some things he was very serious and meticulously careful. His job, for instance, or a do-it-yourself project at home or teaching me to swim. At times like that he was so serious my mother laughed at him. That was why I thought the story of his death so ridiculous—"

"Were these changes of mood sudden or accompanied by flashes of anger?" said Conlon suddenly. "I realize that the implications of the question are clear to you, but please be objective."

"I remember him being angry," Barclay replied, "but not violently or often. Once was when I was six

and climbed a tree I'd been forbidden to climb, other incidents like that. But I seriously doubt that he was capable of losing his emotional control to the extent that he would fly a plane over the sea with insufficient fuel for the flight."

"The relationship between your mother and father," said Conlon. "Was it a good one? Be objective."

"How can I be objective about a family relationship?" said Barclay, unable to conceal his irritation. "They were the only parents I had. I don't *know* how they measured up on an objective basis. *I* thought we were very happy."

Conlon nodded without expression and said, "We'll leave the family relationships for the moment and return to your suspicions regarding your father's death—"

"The manner of his death," Barclay broke in. "By the time I was eighteen we were both pretty sure that he was dead. But somebody—probably Dr. Goyer and maybe a few of the others—was hiding something."

"Very well, the manner of death," said Conlon. He cleared his throat, then went on, "Information about this period is untrustworthy, I realize, but I understand that by the time you were eighteen you had pestered everyone you could possibly reach with your questions and suspicions. In the beginning there was a lot of sympathy for your mother and yourself at the space center, but after six years of making a nuisance of yourself the sympathy began to wear thin. You lost friends. The first to go was Dr. Goyer, the technical director who had been a friend of the family and your adopted uncle. He stopped visiting your home, found somewhere else to be when you called to see him at the center, and finally he left instructions that you weren't to be admitted at all. Is my information substantially correct?"

Barclay nodded.

"When the space center was closed to you, you started making a nuisance of yourselves with local police authorities," Conlon went on. "Each time you moved to another area to stay with relatives, or during a stopover in a large city, you reported your father as a missing person and possible accident or amnesia victim. You supplied pictures of him taken out of uniform, a very accurate physical description, but a fictitious name. It was more than four years before they realized that police authorities all over the country were looking for the same missing person under different names, and the police passed the matter to one of the Government security agencies who investigated you. As a result your missing person was identified, and shortly afterwards you stopped being such a serious nuisance and your mother died.

"What exactly was said to you which made you lose, or appear to lose interest?" Conlon went on,

leaning forward in his chair. "Had your mother's death anything to do with it? Ah, I seem to have touched a sensitive spot."

He has no right to ask questions like this, Barclay thought angrily. Aloud, he said, "I'm simply trying to find out what really happened to my father. What possible reason can you have for wanting to know why my mother or I did or did not do things fifty years ago?"

"So the constant pestering over the years may not have been exclusively your idea," said Conlon musingly. "But surely after all this time you can talk about it? However, to answer your question, the law enforcement people have had more important things to do than waste time abating an apparently harmless nuisance like yourself. But the situation has changed recently and now I must discover all there is to know about you, to help me reach a decision."

"A decision," asked Barclay, feeling his mouth go dry, "or a judgment?"

"Try not to frighten yourself unnecessarily, Citizen," Conlon said, smiling, "and answer the original question."

Barclay wondered what he had done to deserve this interrogation. He had always supposed that his offenses, even during the Mad Years, had been venial. Forcing the anxiety to the back of his mind, he began to describe his mother's initial reaction to the loss of her husband. There had been the grief and the shocked refusal to believe that it had even happened. Barclay realized later that they should both have tried to face up to what had happened and stop the stupid pretense that his father might not be dead simply because his body had not been recovered—he at least should have done so, because his mother had not been a strong-minded woman capable of adapting to a domestic catastrophe on that scale.

She should have married again and, looking back on it, Dr. Goyer had been a strong possibility. They both liked him and it was only his rimless spectacles which made him look old. But Barclay had practically accused him of lying about his father so often that he had stopped coming to the house—although he might still have married her if Mrs. Barclay had not discouraged him also. But she had thought that her son would go to pieces if he was told that his father was really dead—Dr. Goyer had been a kind man, but he had not believed in allowing people to fool themselves—so she kept up the pretense that his father might still be alive for her son's sake. But she had cried a lot at night when she thought Barclay could not hear her, and it was many years later when he realized exactly what she had been going through. By then, unfortunately, she had begun to believe the pretense herself . . .

". . . I still didn't believe the story about him being lost over the sea due to a shortage of fuel," Barclay went on. "Even now I'm convinced he was not the kind of man who would make that sort of mistake. But I wanted to know what really had happened. It was curiosity, mostly, a need to tidy up loose ends so we could forget the whole thing and start over, and a feeling that it was wrong that my father should not only die but be called a fool, which he wasn't, for dying. But then I found myself carrying on the pretense that he might still be alive to help *her* . . ."

Any show of sentiment would be mistaken for the maudlin sentimentality of a silly old man, which was why Barclay made a special effort to be objective as he went on to describe the course of treatment he had devised and put into effect. He had been eighteen at the time and the therapy had been rule of a very tender thumb, because he still had not understood the reality behind the cases he had studied in the psychology textbooks. His language was coldly clinical as he described to Conlon her increasing and constant need for reassurance and the wild, see-saw swings between apparent acceptance of the situation and fits of depression so deep that for days on end she would not even acknowledge his existence.

But there had been progress, nevertheless. His academic record had been very good although he had not sought clinical experience in a psychiatric hospital or in private practice, preferring to specialize in the long-term treatment of one particular patient for whose condition he felt partly responsible. Gradually her fits of depression became rarer and less prolonged. More and more often she had discussed the future, his current girlfriend, his feelings about getting married and making his own way in life. She had said that she should renew old friendships from the space center days. On one occasion she said that his father would probably not have approved of the way they both had been wasting time trying to find out what had happened to him . . .

A photograph of his mother taken from her space center ID card appeared on the screen, but Conlon was concentrating all of his attention on Barclay.

"It wasn't that she was overpossessive or selfish where I was concerned," he resumed, looking at the fifty-year-old photograph. "She did not ask me to do the things I did for her. It was just that she was so terribly dependent on my father that . . . I mean, if it hadn't been for his death this minor flaw in her personality would never have shown up. Even by objective standards," he ended firmly, "she was a very fine person."

Conlon said, "Go on."

"Why this morbid interest in my

mother?" Barclay burst out. "All I came here to find out was—"

"I know what you came to find out," the other said calmly. "But first I have to find out all about you. This includes the people and events which have made you the . . . nuisance . . . that you are today. I am especially interested in what you are today. Now, you say that your mother's mental condition showed signs of improvement, and your qualifications should make this a statement of fact rather than wishful thinking. But there was, I believe, some kind of trouble with the law which brought about a rapid deterioration?"

Barclay nodded, then explained that the police in one of the cities they had lived in became suspicious about the missing person report he had filed on his father, and had referred the matter to an aging, irritable and overworked senior lawman belonging to an unnamed Government agency. This man had drugs, muggings, race-rioting, and steadily mounting larceny and murder figures to contend with, he had told them, and they were not helping things by playing childish games with the constabulary all over the country. The file on astronaut Barclay was closed and they should both go home and make the best of things.

They had fully intended doing just that, but Barclay had not been able to resist the opportunity of asking more questions.

The man had been simply trying to get rid of them, but Barclay had been young and emotionally involved and his mother had not progressed enough to withstand that kind of shock, and suddenly it seemed that someone had not only caused his father's death but was intent on committing character assassination on him as well.

"What, exactly, was said?" asked Conlon.

"He didn't *say* anything," Barclay replied bitterly, "but he gave the impression that my father had defected and taken with him valuable technical material to the Russians. Our people had kept quiet about it, apparently, because a lot of public opinion was building up in favor of a complete cancellation of all space projects, and a scandal like my father's defection would have given too much ammunition to the opposition . . ."

The man's words had made the desired impression on Barclay—for a few hours, at least. But then he decided that he disbelieved the latest story even more than the one about the plane crash. Because he remembered his father talking about the Russian astronauts and how closely they cooperated in space. The space agencies in both countries had been under the same kind of political and economic pressure to suspend operations, there no longer had been expensive duplication of technical effort and few, if any, secrets. There had been

no apparent reason to defect, therefore, even if he had been the type of man who would desert his wife and son to do so—which he very definitely was not.

But his mother, while she had said that she did not believe the story either, had not reacted in a rational fashion. Once again she became desperately anxious to find out what really had happened to her husband.

Dr. Goyer had died a few weeks earlier—in an accident on the space station, a still friendly contact at the center had told them. He also told them that the Doctor was due to be arrested the moment he returned because of a major misappropriation of funds and equipment, so that his death might not have been an accident. His mother had wondered if her husband had become involved in some fashion with Dr. Goyer. She was sure that he was not a thief who had been found out and suicided rather than face his family. Possibly he had discovered something very wrong going on and had been silenced. She had not even mentioned the possibility of his defecting. She became very confused and emotional and she had to find out what had happened at all costs, and it had cost them nearly all the money they had possessed . . .

"You were an unusually dutiful son," Conlon broke in, his tone making the words sound anything but complimentary. He went on, "Was it at this point that you started the collection of technical publications which I've been hearing rumors about?"

Defensively, Barclay said, "I was not being forced to learn languages and spend money on foreign journals, at least not by her. I'd wanted to be an astronaut for as long as I could remember and I still had the interest, even though the Mad Years were starting and spaceflight was dead. Besides, when the TV and radio stations became protest targets and dusk-to-dawn curfews became general, there wasn't anything else to do but read."

Conlon nodded. He said, "So you gave her plenty to occupy her mind. At what stage did you decide to discontinue therapy, and why?"

Therapy . . .

What an off-hand way to describe all those years of careful cross-checking, of sifting and evaluating and cataloging data which was very often in a foreign language. By its very nature the work had lacked excitement, and the encouragements and disappointments had been so slow in becoming manifest that they had never been sure at any given time whether they had been proving or disproving his father's alleged guilt. In the beginning the material could be obtained simply enough by subscription. But later, when their and everyone else's society fell apart, other methods of payment than

money had to be used or the material had to be 'Permanently borrowed without permission.' But when the owners were dead or disinterested, where was the crime?

No doubt Conlon would be glad to tell him the answer to *that* question.

During the Mad Years the word "survivor" had very often been synonymous with "criminal." There had been law but no order, widespread killing for food, fuel or simple self-gratification, and no protection other than self-protection or voluntary slavery to a local gang leader willing to extend his protection for services rendered. The painstaking study and research his mother and he had pursued, the strict mental discipline which had been required to accomplish it, had been an escape to an unexciting but orderly world from the anarchy surrounding them. Conlon was right, it had been therapy, for both of them.

"Please answer," said Conlon. He did not sound impatient or even interested. Perhaps he had lost the capacity to feel or display emotion, or was trying hard to lose it as a good lawman should.

Barclay did not reply at once because he was remembering the aftermath of one of the early food fights between rival gangs. Nobody seemed to care how many innocent bystanders with official ration cards were killed and robbed of their week's supplies, but Barclay had cared very much about one of them. The pause was to ensure that all trace of emotion was absent from his voice and expression before he went on.

"The therapy never stopped," he said, "even after my mother died. This was nearly six years later, when I was thirty-three and the collection had begun to take over the available living space. But it was growing very slowly because the material was becoming increasingly difficult to come by. The evidence I was uncovering was invariably negative, and it was becoming obvious that the exchange of technical information between the Russians and ourselves long before my father's accident made the defection idea very unlikely, in fact virtually impossible. And that is an objective evaluation based on the evidence up to that time, not the subjective reaction of a twelve-year-old boy.

"So far as I am or was aware," Barclay went on, "there was nothing irrational or fanatical about my continuing search for information about my father. It may have started like that, but at that particular time there were so many terrible things going on in the country that the idea of devoting so much time and mental effort to clearing my father's name, or some such romantic idea, was unrealistic to say the least. I think the truth is that then, and during the intervening period until now, the search

for evidence was a habit, something to do with my mind. It happens to be an orderly mind which dislikes unexplained loose ends."

"Good," said Conlon.

Barclay stared at the other man for a moment, wondering if he was being complimented or simply encouraged to continue. The former possibility was so unlikely that he dismissed it, and went on, "I had become very well-informed on the subject of spaceflight by then. At least, I knew enough to know what questions to ask if I could only visit the space center again . . ."

The space center had been under constant attack both politically and physically for some time, because of the money it was costing to maintain even in its powered-down condition and for the large quantities of fuel and other combustibles it contained. One of the reasons for the breakdown of society at the beginning of the Mad Years had been the burning of public and Governmental records by armed protest groups.

In the beginning there had been a kind of logic behind the activity—destroying Income Tax records, traffic violation or criminal records, even certain types of medical records, benefitted certain groups of people. But then the destruction became less selective and much more practical, because power and fuel supplies were diminishing rapidly and books, papers and filing cards kept one warm in winter.

His contact was still living securely and fairly comfortably within the inner perimeter of the space center, and he told Barclay that his job was more like that of a curator in a science museum than a fuel systems engineer. He said that Barclay was welcome to call anytime for a talk or a look around, but that if he was considering making the four-hundred-mile round trip to the center he would need a military escort.

As quickly as possible Barclay set about providing himself with a military escort.

At that time Barclay was in the business of providing essential services to gang leaders and self-defended establishments in an area covering his own city and a few surrounding towns. It had been a very difficult and risky type of business to set up without losing his independence, but gradually he had been able to sell the powers-that-were in the area the idea that someone like himself, who owed allegiance to no particular group, was a necessity. If a specialist medic or a car or TV mechanic was being bought or exchanged—technically the people concerned were not slaves so it was referred to as a Change of Protector—a liaison man, someone who was neutral and therefore able to cross the heavily defended borders of the various gang leaders, was needed to

arrange terms and conduct the transfer. In time he won the respect and even the friendship of some pretty terrifying characters and his people and vehicles were safe from all but a few ignorant free-lancers, and that was why he approached the local military commander with his most ambitious scheme until that time.

Unlike a few of the military establishments he had heard of, which were little more than forced labor camps, Colonel MacIvor ran a very tight and orderly camp. He did not take people under his protection so much as offer them the chance to join his army, after which he gave them less and worked them harder than any gang leader. They became army farmers, army housewives, army schoolteachers, army children, army butchers, bakers and, during the frequent power blackouts, army candlestick makers. Camp MacIvor covered six hundred acres at that time and was still spreading like a great khaki blot of calm and order into the surrounding anarchy. Discipline was strict and the ultimate punishment was not death but discharge, a fate reserved for persistent troublemakers. There were remarkably few of those because Colonel MacIvor demanded every last ounce of mental or physical effort from his people, but their pride he allowed them to keep.

MacIvor's problem was that for a long time he had badly needed certain electronics and communications specialists, vehicle mechanics and a few more decent cooks while he had a comfortable surplus of medics and teachers. Six hundred miles away, Camp Davidson had the same problem in reverse and was willing to swap. The Colonel had four transport helicopters and not enough fuel to use them for the job, and about twenty serviceable armed and armored personnel carriers with insufficient ammo to fight a six-hundred-mile running war—which he did not want to do in any case because most of the space aboard the vehicles would be taken up by spare fuel tanks for the trip, and the people being moved were noncombatants and incapable of using weapons effectively.

Besides, MacIvor was not a warlike man—a fact which he had successfully hidden from everyone except Barclay.

In the past Barclay had performed a few useful services for the Colonel, for which he had been paid in camp-grown food and maintenance on his three pickup trucks and TV set. But this was the biggest job that Barclay had ever taken on, and the negotiated terms were stiff. They included diverting sixty miles on the return journey so that he could spend a few days at the space center, and using an agreed minimum of surplus space on the vehicles for his own personal purposes. In return he under-

took to get the MacIvor medics to Camp Peters and the Peters' specialists back to Camp MacIvor, using his reputation, influence and virtually every favor and obligation he had owing to him to ensure their safe passage.

The outward trip was not without incident, especially while they were traveling through areas close to Camp Peters where Barclay's name and reputation were not well-known, but there were no casualties. One reason for this was that Barclay had advised the transfer personnel to take every possible opportunity to practice both their surgical skills and their bedside manners during stopovers. Because space was limited in their vehicles, they were therefore unable to accept the usual goods as payment for services rendered and received instead a priceless return of goodwill.

The arrival at the space center of a convoy of military personnel was welcome in an establishment whose security force was stretched to the limit. He had suggested that if his charges concealed the fact that they were noncombatants, their three-day stay would be much more pleasant all round.

Most of the center's senior technical people had left for other positions or died, and only his contact, a small, graying man called Bob Saville, remembered Barclay's father. Saville did not mind answering questions or talking about the old days, reliving the past achievements while glossing over the disappointments, or retelling the rumors which had been going around after Dr. Goyer's death. But he had been a very junior member of the staff at that time. He did not know what Goyer had done to get into trouble. One rumor, later strenuously denied, was that the Doctor had falsified reports regarding the accidental loss of a shuttle, but all that Saville *knew* was that the Doc's technical material and files had been sealed in the security strongroom pending a Government investigation on his return from the space station. When he died on the station the investigation was dropped.

Saville did not know if Barclay's father had been connected with the Doctor's trouble, but the idea of him defecting was ridiculous.

Occasionally someone got the urge to look through the Doctor's papers, but there had always been someone else—an old-time friend of the Doc's, usually, with enough rank to have his way—who talked about morbid curiosity and suggested that Goyer's personal and professional effects should be left alone. Saville added that now, of course, the old-timers were dead and nobody cared anymore.

Next day Barclay wandered the space center at will, looking through bulky flight plans in the library, examining the hardware and models in the museum and playing

spaceman on one of the simulators while Bob Saville talked excitedly about all the things they might have done if there had been more money and a little more time before their society sickened itself to death with the sight of its own warts.

At the end of one of the happiest days in his life came the most exciting night . . .

A mob breached the perimeter fence in three places shortly after midnight, forcing the outer security men to withdraw into the main complex. Unlike the earlier attacking mobs, which had acted like a beast with a thousand arms and legs and no brain, this one was being used tactically. Disciplined units within the mob were using the screamers, rioters and burners as cover to attack the center's food warehouse and fuel storage tanks, and it was obvious that they were attacking to steal and not necessarily to destroy.

When the defenders realized what was happening and took the necessary countermeasures, the affair turned suddenly nasty. The mob was directed toward lightly defended buildings which were quickly overrun and set on fire. A few security men died at the hands of this mob and a large number of rioters perished in buildings which they themselves had set alight, but neither the food nor the fuel storage dumps were broached.

By sunrise more than half of the center was burning and the mob had withdrawn to catch its collective breath. But it was obvious that relations between the space center and the adjoining city, never the most friendly in recent years, were ruined forever, and the most that the center's personnel and its visitors could expect was a long siege with very little hope of survival at the end of it. Barclay had therefore suggested holding peace talks with the mob's ringleaders, and before the sun had risen again he had negotiated terms.

It had been agreed that Barclay's convoy of noncombatants—who had learned to combat very well indeed during the preceding twenty-four hours—plus as many of the center's personnel who wished to accompany them could have motor transport, food and fuel for the trip back to Camp MacIvor. In return they would evacuate the center and leave the remaining food and fuel, a very considerable quantity of both, intact.

When Colonel MacIvor learned of the specialties and training of the personnel concerned he said that he would be happy to accept everyone. Barclay's convoy, grown five times larger in size, set off before the mob, which was becoming restive again, could change its mind . . .

"You seem to be adept at talking your way out of trouble," said Conlon drily. He smiled sud-

denly and went on, "I suppose you were able to remove a few souvenirs, schematics, photographs, flight plans and the like, before you left?"

Barclay smiled in return, then shook his head. "I would have liked to, but items like that were in the museum block and had been burned during the first few hours of rioting," he replied. "All that was left was the contents of the security vault, so I loaded a truck with Dr. Goyer's files and filmed material and—"

"You did *what*?"

Conlon was on his feet, leaning over the desk and glaring down at him. Earlier, Barclay had wondered if the other's face was capable of showing any expression at all, but now there were so many different expressions pulling at his features that it was impossible to classify them. But one expression predominated as Conlon resumed his seat a few seconds later, it was a look of quiet exultation—the look, perhaps, of an investigator who has uncovered the key piece of evidence.

After a relatively brief but very violent dark age, Barclay thought sadly, the human race was trying to put society, technology and the legal processes back together again. But law and justice were not always the same thing.

The incident had occurred thirty years ago, he thought desperately, and so much had happened since then that the thought of being punished for it was ridiculous. Barclay was silent for a moment as he marshaled his defenses, then he said, "I did not consider it an act of theft. I was simply removing valuable records which would otherwise have been destroyed."

"You removed valuable Government records," said Conlon quietly, "much of which were secret. Presumably you read this material?"

"Well, yes," said Barclay. "But you must understand that this was the only chance I had of finding out about my father, by studying Goyer's files. But most of the stuff was the Doctor's personal notes and photographs, a couple of the big, thick flight plans of missions my father had flown, detailed drawings of the instrument packages and experiments the shuttles had carried, and things like that. But there was nothing that told me anything new about my father, and if the material was Top Secret then it still is."

"Explain," said Conlon.

"The Doctor's material," Barclay replied carefully, "was too difficult for me to understand. I tried to find textbooks which would help me understand it, and I'm still trying. But I'm a psychologist, if anything, not an experimental physicist and whatever else Dr. Goyer was. Nobody I knew could understand it, either."

"There are still a few people around who may be able to under-

stand it," said Conlon, "and it is a strong point in your favor that you kept this material safe. But you realize that we will have to confiscate this material?"

Barclay stared at him without speaking.

Conlon frowned, then said, "Your private space collection is your life's work, perhaps? You would fall apart psychologically without it?"

As objectively as possible, Barclay considered the question. He thought of all those years of studying and cross-checking that steadily growing collection, and of his search which had been interrupted from time to time but which wealth and retirement had now enabled him to resume. He had desperately wanted to be an astronaut when he was young, but now spaceflight was dead for lack of resources both technical and material. Besides, if he was completely frank with himself about it, the search and the collection had been a hobby, something to do, good therapy when it was needed for his mother and himself, and really only a means to the end of finding out about his father.

His strongest feeling, Barclay realized suddenly, was not one of regret at losing the collection but of relief that Conlon might be more interested in acquiring it than in punishing him.

"You're welcome to it," said Barclay.

Smiling, Conlon said, "We should give you something in return . . ."

"No need," said Barclay. "Now that you seem to be more interested in the collection than in me, I'm so relieved that—"

"I'm still very much interested in you, Citizen Barclay," Conlon broke in, "and I am very far from being finished with you. I said that we owed you a favor, but I cannot decide whether it will be a punishment or a reward. I suppose it depends on whether or not you believe that it is better to journey hopefully than to arrive.

"Would you like to know," he went on very seriously, "what really happened to your father?"

He stared at Barclay's face for a moment, visibly coming to a decision, then he touched a button on his desk. The picture on the wall TV changed once again.

To the technically uninformed it was a boring film, simply the sound and vision record of a space shuttle mission in which a large and complex experiment package was transported from the space station to an unnamed destination. Barclay had studied similar material which he had taken from the center, and seeing it on film with a spoken commentary by Dr. Goyer did nothing to increase his understanding of what had been going on. Occasionally his father and another astronaut appeared on the film, but only because they happened to be

examining the hardware of the package which was the exclusive interest of the cameraman. Until a few minutes from the end, that was, when there was a five-second shot of the Doctor shaking hands with his father and the unfamiliar astronaut on the shuttle's flight deck, and all of them looking highly embarrassed about it.

This was followed by a sequence showing the shuttle detaching itself from the space station and shrinking from view while his father and the Doctor recited esoteric mathematical litanies to each other. For perhaps a minute the screen was black except for a few of the brighter stars, then there was an intensely brilliant flash of light in the center of the field of view and his father stopped talking suddenly.

So, eventually, did the Doctor.

Conlon cleared his throat and said, "Dr. Goyer lied to you, of course. He had no choice. That was a highly unofficial experiment, obviously, and conducted without the approval or knowledge of the authorities. Only Goyer, your father and a few top people in the center and on the station knew about the project. Only if it had been completely successful could they have announced the results and, hopefully, reversed the accelerating retreat from space and the space-related sciences.

"The Doctor could not risk telling your mother or yourself about this, naturally. Your father had volunteered for the mission, which was to test the system of propulsion Goyer had devised. I am as ignorant as you are about the operating principles, except that it would make space travel, perhaps even interstellar travel, as cheap and easy as taking a trip on one of the intercontinental jets of the day. But I suspect that the Doctor felt responsible, perhaps even guilty, for what happened to your father. When you accused him of knowing more than he had told you . . . Well, he had to stop going to your house or talking to you."

For a moment Barclay stared silently at the wall TV. It showed his father asleep on a couch, his face haggard and tense despite the sedation—footage which had probably been shot at the end of a training session. In his mind's eye there was a picture of Dr. Goyer as he had been during the last few times Barclay had spoken to him—angry, somehow furtive, afraid and nothing like the smiling character with the inexhaustible supply of candy bars in his pockets who had been his only adult friend. Barclay blinked, then returned his attention to Conlon.

"Now I understand," he said. "And thank you."

Conlon nodded. Sympathetically, he said, "The film is part of material which became available only a few weeks ago. But now that your search is at an end, how do you feel? Is your father's memory still

painfully fresh or have your feelings changed toward him?"

Barclay pushed back his chair and stood up. Coldly, he said, "I am grateful to you for telling me what really happened, and you have said that you are grateful to me for giving you the technical material I have collected over the past fifty years. Let's call it quits. This constant probing of my feelings toward—"

"Be objective," said Conlon, returning to his cool and clinical tone.

"Very *well*!" said Barclay furiously. "My feelings are those of relief and satisfaction at knowing the answer at last, but I don't feel maudlin about it. Regarding my father himself, with fifty years of hindsight my feelings were bound to change. I know now that my mother and he were too emotionally dependent on each other, that if the positions had been reversed and he had lost her, the result would probably have been similar. Objectively, I would say that he was brave, dedicated, enthusiastic, considerate and, I realize now, not very tough. Subjectively, if you're interested, he was a very good father."

"I'm interested in both of you," said Conlon. "Now sit down!"

Barclay resumed his seat, then said dully, "You are grateful to me, but I have broken a very old law. I suppose the questions are an attempt by you to show your gratitude by trying to find extenuating circumstances. But now comes the sentence."

Conlon nodded and said, "From the evidence I have obtained about you I would say that it will probably be a life sentence. But before the sentence comes the judge's summing-up, so please pay attention.

"Before your father's mission there were two other astronauts who suffered fictitious, Goyer-type accidents," he went on seriously, "but their families or friends accepted the Doctor's explanation of what had happened and, unlike you, did not make trouble. According to the material which came with the film I showed you, Goyer had been confident of success with your father's mission, but there was a reference to hyperdimensional travel and the danger of misplacing a decimal point when warping time and space. Just think of that, hyperdimensional travel! We will never be able to mount anything as expensive as Apollo again.

"But we still need space travel, if only as a challenge that will turn our minds outward again. We both know that, I believe. But Goyer and the others who remember his work are dead now, with the exception of one man who can't help because he is incapable of coherent thought . . ."

Conlon's emotional control was slipping badly. He shook his head angrily, then went on, "So we are

left with one old man, yourself, whose steadfast belief that his father was a good guy despite everything that was said or hinted about him, was directly responsible for preserving so much knowledge of the art. And we have the recently acquired film and records, which are useless without—"

"Where did you get that film?" said Barclay suddenly. "I thought I'd cleaned out Goyer's files and—"

"You did," said Conlon drily. "It came back on one of the Goyer-modified shuttles which crashed three weeks ago. The shuttle returned safely from a very long trip in space and an incredibly short one in time, to find the space station deserted and deactivated . . ."

One of the two-man crew had died in the first few hours of the mission, during a period of EVA while he was trying to make adjustments to the Goyer equipment. The survivor got himself very thoroughly lost in interstellar space and had to try to find his way back by trial and error, never sure whether his next space jump would be of a million miles or twenty light-years, and even with his companion dead the ship's consumables would last for less than a week.

When he did eventually find his way back to the Solar System and the space station, the station's air had leaked away. He could not perform the intricate series of tasks needed to reactivate the station while he was wearing a spacesuit, and neither could he power-up the surface surveillance equipment or radio. The shuttle's radio was apparently on the blink because he could not raise anyone with it. Dust and cobwebs do not gather in space stations so he had no way of knowing how long it had been deserted. But his air was dangerously low and he had to try for a landing without guidance from the surface . . .

". . . And he would have made it, too," Conlon went on in a hushed, respectful voice, "if his old-time landing area had not been covered with homes and factory buildings. It is not an easy thing to divert in a supersonic glider on final approach, when it is close to stalling and its aerodynamic handling properties are those of a falling brick. But he managed to direct it well clear of the buildings before he dropped the message container with the film and records, then ejected himself.

Conlon canceled the picture on the wall TV and stood up. He said, "It was rough country and he was lucky to escape with a broken ankle and a few bruises, but mentally he is in very poor shape. Quite apart from any humane considerations we—if we are to have any chance at all of rebuilding the Goyer drive—must have him sane and healthy and cooperative. That will be your job, your sentence, if you like.

"Frankly, Citizen Barclay, I have

been playing games with you," he went on. "For this I apologize. You will understand, I'm sure, that when a candidate is being interviewed for a difficult and responsible job, the process is not a pleasant one for the man concerned. I am, of course, in medicine and not law, and I shall not be playing games with you again. Instead I shall do everything possible to assist you with treatment.

"It will not be an easy job," he continued as he moved toward the inner door of his office and opened it. "The patient came through a lot during that interstellar trip. He wasn't sure of finding his way back, and I think there are feelings of guilt regarding the death of his companion, but this may be due to a hyperdeveloped sense of responsibility. As well, he is seriously disoriented and completely out of his depth in this alien society of today, with its dueling and, by his standards, incredibly harsh laws. And despite everything we have tried to tell him he wants to see his young wife and son who, so far as his time sense is concerned, were alive and well a few weeks ago.

"You can see that it will need someone with patience and understanding to bring him back," Conlon said quietly. He stood to the side of the door and motioned Barclay to enter before going on, "Someone who has lived through the past fifty years and knows from experience what adaptations were and are necessary, someone with a personal as well as a scientific interest in what he is doing. In short, someone who is family . . ."

Very gently, Conlon closed the door behind him so as to leave him alone with his patient for the first few minutes. Barclay looked down at the sleeping figure on the couch with the TV camera trained on its head and shoulders, the same head and shoulders that he had seen on the screen in the outer office, while he tried to blink away the fog which was keeping him from seeing the face clearly.

Quietly, he said, "Hello, Dad." ■

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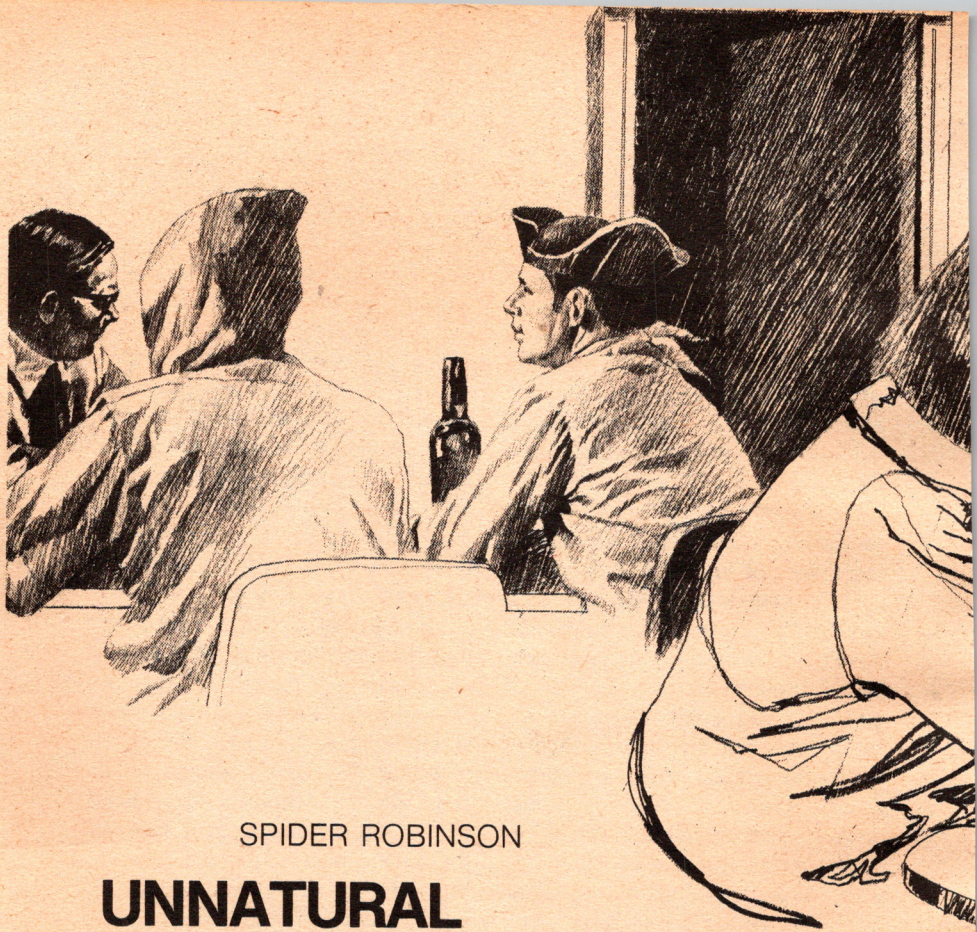


SPIDER ROBINSON

UNNATURAL CAUSES OR THE GUY WE COULDN'T HELP

When the Inquisition burned heretics at the stake, they were acting out of higher motives. Weren't they?

There's been quite a lot of noise in the papers lately about the series of seismic shocks that have been recorded over the last few weeks in the unlikeliest places. Quake-predicting is a young art, from what I hear, and an occasional freak disturbance now and again should be no real cause for alarm—but an unpredicted miniquake every day or

two for three weeks, spotted all around the globe, culminating in a blockbuster where a quake had no right to be, is bound to cause talk.

The seismologists confess themselves baffled. Some note that none of the quakes took place in a densely populated area, and are reassured. Some note the uniquely powerful though strictly local intensity of the shocks, and are perturbed. Some note the utter inability of their science to explain the quakes even after the fact, and fear that the end of the world is at hand.

But me—well, from here at the site of the first quake in the series, Suffolk County, Long Island, New York, USA, I have a different idea.

If you've been following the chronicles of Callahan's Place, you probably know what a circus the place can be on an ordinary night. Well I'm here to tell you that on holidays like Christmas and New Year's, it becomes something to stagger the imagination. All the stops are pulled out, insanity reigns supreme, and the joint generally resembles a cross between a Shriner's Convention and an asylum run by the Marx Brothers.

So perhaps it wasn't surprising that the first quake in the series struck damn near Callahan's Place on Halloween. It certainly couldn't have happened the way it did on any other night.

The place was more packed than even I had ever seen it before, and I've been hanging out at Callahan's for a few years now. Added to the usual list of regulars and semi-regulars was a host of old-timers and ex-regulars, some of whom I knew only by reputation and some not at all. See, a lot of Callahan's customers stop needing to drink after they've been around long enough, and not many people in this crazy age enjoy judicious doses of ethanol for its own sake. So they stop showing up, or become more involved with their families, or simply move elsewhere—but holidays somehow draw them all back like chickens to the roost come sundown.

So by nine o'clock Callahan had already had to sweep the shattered glasses out of the fireplace to make way for incoming shipments, leaving Tom Hauptman to cover the bar, and more people were coming in all the time.

Nearly everyone had come in costume, lending a surreal air to a bar that's never been what you'd call mundane. There were at least four guys in gorilla suits playing poker in the corner, five or six sheeted ghosts doing a shuffle-off-to-Buffalo through the press of the crowd, and seventeen assorted bug-eyed monsters and little green men scattered here and there. Among the more imaginative were Doc Webster, who dressed up as Hippocrates and was instantly dubbed "Hippo-Crates" (Doc's raincoats make great tarpaulins); Long-Drink McGonnigle, who appeared for the first time in my memory in a suit and tie, announcing he was a businessman and demanding "executive's privilege" at the bar; Fast Eddie, who showed up in blackface and rags and said he was Scott Joplin; Noah Gonzalez and Tommy Janssen who teamed up as a horse with a head at both ends because neither of them wanted to be the . . . well, you get the idea. Callahan himself was dressed up as a grizzly bear, which suited his huge Irish bulk well, but he kept wincing when jostled, explaining to anyone foolish enough to listen that he was "a b'ar tender." Me, I was dressed as a pirate with a black eye-patch and the name of a

certain oil company painted across my chest.

I was watching the tumult and enjoying myself hugely, trying to guess the identity of friends through their masks, when I spotted one very familiar face unmasked. It was Mickey Finn, the alien scout who had decided at Callahan's Place that maybe the human race was worth saving after all, and resigned his job as exterminator for a distant and powerful race. (See "The Guy With the Eyes," February 1973 *Analog.*) I hadn't seen Finn for quite a spell, since he moved up to the Gaspé Peninsula in Canada to do some farming, and I was delighted to see that he'd made the reunion.

"Finn," I hollered over the merry roar, "this way."

A human might not have heard me, but Finn looked up right away and started working his way toward the bar.

There's some machine in Finn, the way he tells it, but I think there's a lot of human in him too. He could have easily put a hand through the wall, but he was extremely careful not to discommode anyone on his way to the bar. I looked him over as he approached, noted his workshirt, sturdy coveralls and worn boots, and decided he was making a fair adjustment to his life of exile as a human. (Since the only way he could induce his voracious masters to avoid Earth was to feign his own destruction, Finn is sort of stuck here.)

He reached me at last, shook my hand gravely and accepted a glass of rye from Tom Hauptman. He offered Tom a dollar bill, the only legal tender in Callahan's Place.

"No thanks, Mr. Finn," the ex-minister told him. "Mike tells me your money's no good here."

Finn did what on his face passes for a smile, kept the bill extended. "Thank you, sir," he said in that funny voice of his, "but I truly prefer to pay my own way."

I shook my head. "If you're gonna be human, Finn, you're gonna have to learn to accept gifts," I told him.

He sobered up and put away his money, nodding to himself as much as to me. "Yes. This is a hard learning, my friend. I must not refuse a gift from Mr. Callahan, who gave me the greatest gift—my free will."

"Hey, Finn, don't take it so hard," I said quickly. "Accepting a gift graciously is something a lot of humans never learn. Why should you be more human than Spiro Agnew?" I leaned back against the bar and took a sip of Bushmill's. "Come on, loosen up. You're among friends."

Finn looked around, his shoulders relaxing. "Some of these are unfamiliar to me," he said, gesturing toward the crowd.

"Lot of 'em are strangers to me too," I said. "Let's amble around and get to know some of 'em. But

first, tell me what you've been doing with yourself. How's life in Canada?"

"I am doing well," Finn said, "and I am also doing good, I think."

"How do you mean?"

"Jake, my friend," Finn said earnestly, "the Gaspé is one of the biggest paradoxes on this continent—some of the richest farmland, and some of the poorest farmers. In addition to making my own living, I have been trying to help them."

"How do you do that?" I asked, interested.

"In small ways," Finn replied. "I see further into the infrared than their eyes can see; I can evaluate soil at a glance and compute yield, evaluate their growing crops much better than they, and suggest what to plan for. That taught them to listen to my opinions, and of late I have been speaking of the necessity for alternate means of distribution of their goods. It goes slowly—but someday those frozen acres will feed many hungry people, I hope."

"Why, that's just fine, Finn," I said, slapping him on the back. "I knew there was work for a man like you. Come on, let's meet some of the old-timers." Finn, being as tight with his words as some gents are with their money, nodded briefly, and we plunged into the thick of the crowd.

I spotted four tables pushed together near the fireplace, at which were seated the Doc, Sam Thayer, and a whole bunch of apparent strangers in assorted odd costumes. Best of all, Callahan was standing nearby—it seemed like a good place to start. I steered Finn in that direction, collecting a couple of chairs on the way and signaling Callahan to join us.

As we sat down, one of the unfamiliar gents, dressed as a shepherd, was just finishing a plaintive rendition of "I Know I'll Never Find Another Ewe," and was applauded by a chorus of groans and catcalls.

"Better take it on the lamb, Tony," Doc Webster suggested.

"Where there's a wool, Thayer's away," agreed Sam, rising as if to leave. One of the boys removed his chair with a thoughtful expression, and he sat down rather further than he had intended. Callahan lumbered up and appropriated the chair, laughter echoing from within the great bear costume he wore, and Sam promptly sat on Bill Gerrity's lap. This is funnier than it sounds, because Bill is a transvestite and was done up as Marilyn Monroe that particular night. (While Callahan's is certainly not the only bar where Bill can indulge his peculiarity, it's the only one where he doesn't have to put up with the annoyance of being propositioned regularly—and Bill is *not* gay.) As Sam was dressed as Mortimer Snurd, the effect was spectacular, and those around the room not otherwise occupied cheered and whistled. One of the gorillas in the

corner looked up from his cards and scowled.

I glanced around the table, taking inventory: a fireman, a five-foot-seven duck, two bug-eyed monsters (one purple and tentacled, one green and furry), and one Conan the Barbarian. "Hey, Mike," I called to Callahan, "introduce me and Finn around and we'll swap stories." Callahan took off the bear head and opened his mouth, but the Doc put a beer in it. "I bear beer, bear," he announced, and a groan arose.

"OK," I said. "I'll start the ball rolling. Howdy, folks, I'm Jake. This here's Mickey Finn." Various hellos came from the group, and a pretzel landed in my drink.

"Look, Jake," said the shepherd, "what you said about swapping stories sounds good to me. As we introduce ourselves, let's explain what brought us here to Callahan's. I know some of you boys must have stories I'd like to hear—nobody seems to come here without a reason. What do you say?"

We all looked around. "Suits." "OK by me." "Why not?" There was no apparent reluctance—Callahan's is the place you went to first because you needed to talk about your troubles—and the first time is always the hardest.

"Fine," said the shepherd. "I guess I ought to start."

He took a glass, filled it up and wetted his whistle. He was about my age, with odd streaks of white hair at either temple that, combined with his classical shepherd's garb, made him look like a young Homer. His features were handsome and his build excellent, but I noted with surprise that his left earlobe was missing. There was a scar on his right shoulder, nearly hidden by a deep tan, that looked like it had been put there with a crosscut saw.

"My name is Tony Telasco," he said when he had swallowed. "I give lectures and slide shows and make speeches, and sometimes I go to jail, but I used to do a lot of other things before I came to Callahan's. I was a transcendental meditator for a while, staring at my navel. Before that I was a junkie, and before that I was a drug user, and before that I was a drunk and before that I was a killer. That was right after I was a kid.

"See, the thing I *really* am is a Vietnam veteran."

There were low whistles and exclamations all around.

"I was in my first year of college," Tony went on, "when I got that magic piece of paper from my draft board. Business Ad majors just weren't getting deferments, and so I had the classic three choices: go to jail, Canada, or Vietnam.

"Which wasn't a lot of choice. Make no mistake, I was scared spitless of Vietnam—I watched television. But I was scared and ashamed to go to jail, and too scared and incompetent to emi-

grate. To be brought into a strange country to fight would be tough, but to move into one myself and make a living with no skills and no degree looked impossible to me.

"So 'Nam seemed to be the lesser of three evils. I never made a moral decision about the war, never questioned whether going there was the right thing to do. *It was the easiest.* Oh, I knew a few guys who went to Canada, but I never really understood them—I *liked* America. And I knew one fellow in my English class who went to jail for refusing to step forward—but his third day there they found him on the end of his bedsheet, his eyes all bugged out and his cellmate apparently asleep.

"And so I found myself in the Army. Basic was tough, but tolerable; I'd always liked physical exercise, and I was in pretty good shape to start with. It was a lot rougher on my mind.

"The best friend I made in Basic was a guy named Steve McConnell, from California. Steve was a good joe, the kind of guy who's really good to have with you in a rugged situation like Basic. He had a knack for pointing out the idiocies of military life, and a huge capacity for enjoying them. Kind of a dry sense of humor—he didn't laugh loud, in fact he hardly ever laughed *aloud,* but he was perpetually amused by things that drove me crazy. Like me, he'd sort of drifted into the Army, but the more he thought about the idea, the less he liked it. Neither did I, but I didn't see anything I could do about it.

"We spent hours peeling potatoes together, discussing war and the Army and the 'Communist menace in Southeast Asia'—when we weren't talking about women, of course. Steve was an independent thinker—he didn't hang out with the other blacks in our unit, who had cliqued up in self-protection. That's tough for a black man in the US Army, but Steve cut his own path, and chose his brothers by criteria other than the shade they were painted. I don't know why he and I were so tight—I don't know what his criteria were—but somehow we were so close I got the idea I really knew him, understood where he was at.

"I was as surprised as anyone when he finally made his stand.

"There comes a day, see, when they line you up on a godawful cold February morning and truck up a couple of coffin-sized cartons. The DIs are clearly more pretentious than usual, projecting the air that something sacred is about to happen. By Army standards they're right.

"What happens is, you get to the head of the line and throw out your hands and one huge mother of a sergeant flings a rifle at you as hard as he can—you've been Issued Your Rifle, and mister, God have mercy on you if you drop it, or

fumble your catch and let part of it touch the ground. Worse than calling it a 'gun.' A few guys do catch copper-plated hell for having fingers too frozen to clutch, and you spend your time, on line furiously flexing your fingers and praying to God that you won't blow it.

"Steve was right in front of me on line, and curiously withdrawn; I couldn't get a rise out of him with even the filthiest joke. I chalked it off to the cold and the solemnity of the occasion, and I guess I was part right.

"All at once it was his turn and the big sergeant selected a rifle and pressed it to his chest and straight-armed it with a bit extra oomph because he was from Alabama and I prayed Steve would field it OK and he just simply sidestepped.

"It was just like that—one rushing second and then Time stopped. Steve pulled to his left and the rifle cartwheeled past him and struck earth barrel-first, *sank* a mother-loving three inches into the mud, the stock brushing my knee. All around the parade ground people stopped cursing and joking and stared, stared at that damned M-1 quivering in the mud like a branch planted by an idiot, stared and waited for the sky to fall.

"The big sergeant got even redder than February wind could account for and swelled up like a toad, groping for an obscenity that could contain his fury. And as he found it, Steve spoke up in the mildest voice I ever heard. 'I'm sorry, Sergeant,' he said, 'but I can't take that rifle.'

"The sergeant came to life; verbal insubordination was easier to comprehend and deal with than that rifle jutting impossibly from the mud. 'Shut up and pick up your goddamned rifle, nigger,' he roared, 'or you'll have it for breakfast.'

"Steve blinked, shook his head. 'Sorry. Can't do her. That thing kills people and I just can't take it.'

"The sergeant hauled out his service .45 and aimed it at Steve's navel. 'This thing kills too, *Private.* Pick up that rifle.'

"I looked at Steve, paralyzed by his crazy stunt. He was plainly scared to death, and I was as sure as he that he was about to die. *Pick it up, Steve,* I prayed. *You don't have to use it now, just pick the goddamned thing up.*

" 'Sergeant,' he said finally, 'you can make me pick it up, but you can't *ever* make me use it. Not even with that automatic. So what's the point?'

"The sergeant glared at him a long moment, then holstered his .45 and waved over a couple of corporals. "Take this goddamn nigger to the guardhouse," he snarled, and bent over the carton again. Before I had time to think, he heaved a rifle at me, and I made a perfect catch. "Next!" he bellowed, and the line moved forward. I found myself in barracks, looking at my

new rifle and wondering why Steve had done such a crazy thing.

"I went off to 'Nam soon after that—tried to get word to Steve in the stockade, but it couldn't be done. He got left behind with the rest of America, and I found myself in a jungle full of unfriendly strangers. It was bad—real bad—and I began to think a lot about Steve and the choice he had made. I couldn't tell the people I was fighting from the people I was fighting for, and the official policy of 'kill what moves' didn't satisfy me.

"At first. Then one day a twelve-year-old boy as cute as Dondi took off my left earlobe with a machete while I got some K-rations out of my pack for him. The kid would have taken off my head instead of my ear, but a pretty tight buddy of mine, Sean Reilly, shot him in the belly while he was winding up. 'Christ, Tony,' Sean said when he'd made sure the kid was dead, 'you know the word: never turn your back on a gook.'

"I was too busy with my bleeding ear to reply, but I was coming to agree with him. Just as 'Nam had been easier than jail, killing gooks was easier than discussing political philosophy with them.

"A week later it got to be more than easy.

"Sean's squad had been sent upriver to reconnoiter, while the rest of us got our breath back for a big push. I was on sentry duty with a fellow whose name I mis-remember—he wasn't a bad guy, but he smoked marijuana, and I'd been raised to think that stuff was evil. Anyway, this particular day he smoked a couple of joints while we sat there listening to the jungle sounds and waiting for relief so we could eat. It made him thirsty, so I offered to spell him while he went to the river for a drink. He slipped into the jungle, walking a little unsteadily.

"A minute later I heard him scream.

"It was only fifty yards or so to the river, but I came circumspectly, expecting to find him dead and the enemy in strength. But when I poked my rifle through the foliage, there was no one in sight but him. He was on his knees with his face buried in his hands. *Oh Jesus,* I thought, *what a time to freak out.* I started to swear at him, and then I saw what he had seen.

"It was Sean, floating lazily against the bank with his fingers and toes dangling from a sort of necklace around his throat and his genitals sewed into his mouth.

"A friend, a man who had saved my life, a guy who wanted to be an artist when he got home, carved up like a Christmas turkey by a bunch of yellow monkeys—it became much more than easy to kill gooks.

"It became fun.

"The rest of my tour passed in a red haze. I remember raping women, I remember clubbing a

baby's skull in with a rifle butt to encourage a VC-sympathizer to talk, I remember torturing captured prisoners and enjoying it. I remember a dozen little My Lais, and I remember me in the middle with a smile like a wolf. I mean, I was *into* it. Fury tasted better than confusion, and this time it was easier to *kill* than to think.

"I don't know what would have happened to me if I'd come home kill-crazy like that. God knows what happened to the ones that did. But two weeks before I was due to go home I got a letter from a friend in the States, a supply corporal back at boot camp.

"Steve McConnell had died in military prison. He 'fell down the stairs' and broke nearly every bone in his body, but it was the ruptured spleen that killed him. There had been no inquiry; the official verdict was 'accidental death.' As accidental as Sean's—except our side did it.

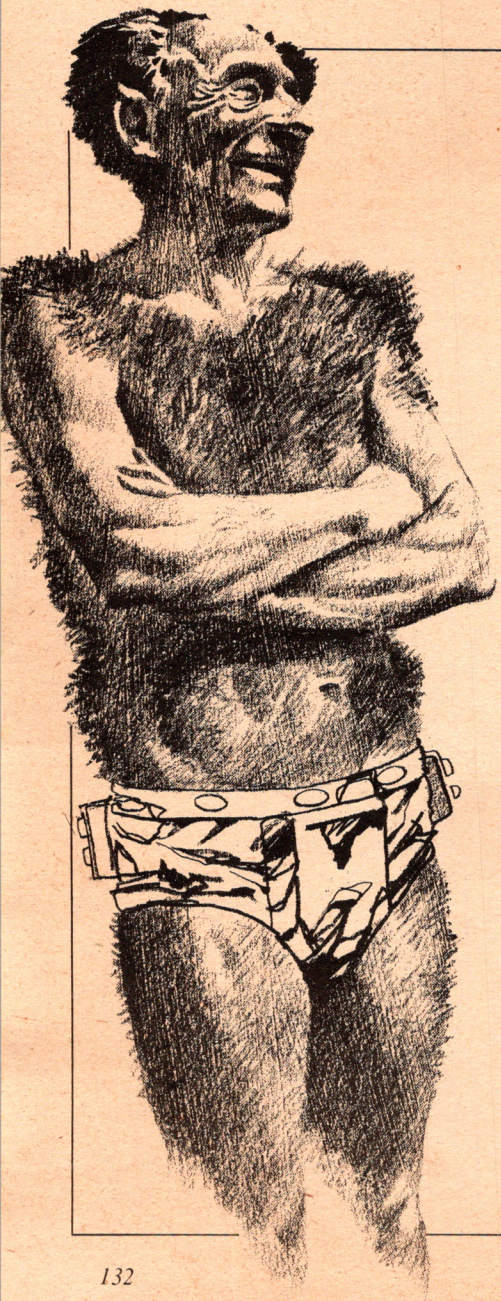
"In the time it took me to read that letter I went from kill-crazy all the way to the other kind, and the next morning I took my squad out and tried to die and loused it up and got my second Purple Heart and a Silver Star. I never got another chance in 'Nam; they sent me home from the hospital with some neat embroidery on this seam on my shoulder and a piece of paper that said I was a normal human being again.

"Killing myself just didn't seem as reasonable in the States as it somehow had in 'Nam, and so I tried forgetting instead. For a while, booze did the trick, but I couldn't keep it up—my stomach wouldn't tolerate the dosage required. Then for a while pot was a real help, but sometimes made it worse: visions of spurting blood and Sean's fingers and Steve boneless like a jello man. So I tried a hit of coke, and that was just fine, and one day a spade who looked a lot like Steve laid some smack on me. Heroin was just what I'd been looking for, and it wasn't any surprise when I got a Jones—a habit I mean.

"But it's funny—I guess I didn't really *want* to kill myself at all. I heard about this transcendental meditation stuff and started hanging around Ananda Marga Yoga Society meetings—and boy, I kicked clean. Instead of getting high on smack, I got high on big bites of bliss, which is cheaper, healthier, legal and a much more satisfactory head all the way around.

"It was over a year before I noticed I wasn't accomplishing anything.

"But about that time I got lucky and took Doc Webster's advice and started coming to Callahan's Place. Things started getting clearer in my head—a lot clearer. Next thing I knew, I was on a stage giving a speech to the VVAW, and I learned that there are things worth fighting and fighting for—but fighting clean. I started giving talks and



joining demonstrations and appearing on TV. I've been arrested four times, had my leg broken by a county cop, and they took my name off the Native Sons Honor Roll in my home town. My father won't talk to me—yet—and my phone is tapped.

"I feel great . . . and it's all thanks to you, Mr. Callahan," Tony finished.

"Shucks, Tony," Callahan rumbled, "We didn't do anything for you that you couldn't have done yourself."

"You accepted me," Telasco said simply. "You made me understand that I was just a normal human being who'd been caught up in a nightmare, a nightmare that made him realize he had the makings of a killer ape in him. One night I told you and your customers this whole story and you didn't stare at me like a mad dog. You told me that I needed a bigger audience.

"You showed me that it wasn't my killer nature that was shameful—but the refusal to think things out that landed me in 'Nam in the first place. You showed me that just because I took a while to make the sort of decision Steve made didn't mean I didn't have Steve's kind of guts in me somewhere. I was sure I didn't have that kind of guts, and so I never looked for them. When I did . . . I found

them. Because you had faith in me.

"Jail is no picnic," he told the rest of us, "but I want to do what I can to see that no one else gets caught in the meat grinder like I did. But I don't do it from guilt, I do it for its own sake." He looked back at Callahan. "I already got my absolution here."

Callahan topped off his glass and slapped him on the back. "Well spoke, Tony," he boomed, and we all raised our glasses and toasted him in unison. The fireplace exploded with glass when we were through.

"I knew it," said the Doc, "as soon as I saw him dressed as a shepherd I knew he had to be a vet." Groans arose, but the comic relief was timely.

"If you don't pipe down, Doc, he won't be the only hoarse doctor around here," Callahan grimaced.

"Now, now," said the Doc. "I'm a happily married man. I don't fool around with whores in either of our professional capacities."

"You couldn't pay 'em enough, Doc," Callahan grinned, but before the Doc could reply, Mickey Finn grabbed Callahan's shoulder so hard he winced—something nobody else could manage.

"My friend Mike," Finn said urgently, "that person there, in the green costume—it is not a costume. He is not human."

Callahan blinked, and such jaws as were visible dropped like gallows trapdoors. If anyone but Finn had said that—anywhere but at Callahan's Place—we'd have thought he was crazy or drunk.

"I see further into the infrared range than you humans," Finn went on hurriedly. "It is why I am such a successful farmer. I was watching the currents of heat from the fireplace make patterns in the air while I listened to Tony's story, enjoying their beauty—but I just caught the green one watching them too. Close examination shows me that his fur and features are genuine. Friends, this is an alien."

We all stared at the green fellow, waiting for him to take off his mask and say something. He *looked* human enough—the usual number of arms and legs, I mean. His mouth was a trifle too wide, now that you noticed, and the fur sure looked real. If those pointed, oversized ears were glued on, I couldn't see where.

He looked around at us, put down his glass and shrugged his knobby, tufted shoulders. "There is no point in denying it, gentlemen. I am not human. In fact, I came here tonight specifically to tell you how unhuman I am. The story I have heard encouraged me to confess, but still I . . . hesitated. However, now that I have been identified by another nonhuman, I

suppose I must speak. Will you listen?"

Callahan spoke for all of us. "Mister, if you've got troubles, you're in the right place. Go ahead."

The green alien nodded. His eyes were deeply troubled.

"My name, gentlemen," he said in a pleasing tenor, "is Broodseven-Sub-Two Raksha, as well as it can be translated into your tongue. I am . . . well, the profession does not really exist as such here, but my function combines elements of sociologist, psychologist, soldier and farmer. My people are the Krundai, and Krundar, my home, is located so far from here that your instruments have not yet detected its sun. There are several dozen Krundai on your planet, a team which has been here for over two thousand years . . . a team of which I am the least member." He paused, looked embarrassed.

"What are you fellers doin' here?" Callahan asked.

"That," said the alien hesitantly, "is what I have come here to tell you. It . . . it is not an easy thing to tell. I have spent thirty-five of your years formulating my opinions in words and seeking someone to whom to speak them. Fifteen of those years sufficed to eliminate as confidants all of my fellow Krundai; for another fifteen I debated whether I could conceivably unburden myself to a human. Unable to resolve the question, I spent the last five years picking those humans in whom I *might* confide. I found on your planet a total of 174 humans whom I felt might be able to understand and help, and thirty-five of those are now present in this room.

"All of you at this table are such."

We looked around at each other, wondering whether we were all special or just crazy in the same way. I sure didn't feel special.

"Even now," Raksha went on, "I have not entirely resolved my debate. My decision is much like that of Mr. Telasco, but it is further complicated in that it could involve betraying my entire race. The presence of Mr. Finn, whom I find to be, as he says, as nonhuman as myself, complicates things considerably—although I suspect his origins may better enable him to empathize with me."

He faced Finn. "Space holds many viewpoints, Finn. You seem to be a traveler, of broader experience than these ephemerals. Will you try to understand me?"

Finn looked him square in the eye. "I will listen."

Raksha didn't seem to care much for that answer, but he nodded. He turned to us. "Will you . . . all of you . . . swear that no word of what I tell you will reach my fellow Krundai? I must warn you that confiding in other humans would accomplish this thing."

This time there was no more

need for us to look around than there was for all of us to speak. "Every man at this table can keep his lip buttoned," Callahan said simply. "Speak your piece."

The green furry alien looked us over again, one after another, beginning and ending with Callahan. As his eyes met mine, I noticed for the first time that the surfaces of them rippled with faintly glistening semicircular lines, just like the one you look for when you're pouring coffee into a dark cup. They shifted position in a different way than the specks on a human eyeball do, independent of the motion of the eyes themselves. They scared the hell out of me somehow, more than the fur and the ears did.

He reached his decision.

"Yes, gentlemen. Come what may, I must speak. If I can be helped by anyone, of any race, it is you. Brood help me if you cannot."

I grabbed a pitcher and got half of it down before Bill and Sam snatched it away.

"I must begin," the alien went on, "by explaining to you some central facts about my people.

"First, we live much, much longer than humans. An average Krundai sees his three-thousandth birthday before returning to the Great Pouch, and some have lived as much as five or six centuries longer. I myself am well over eight hundred years old, and I am the youngest Krundai on your world, having been born here."

"That explains how you know our language and idiom so well," I interrupted.

"My four immediate ancestors had a hand in its creation," Raksha said dryly.

I shut up.

"Second, as you may well imagine, we are a very patient people, by your standards. Even allowing for the difference in our respective life-spans, we move in much less haste than you, and plan projects in terms of how many of our generations they will require to complete. Our concern is for the continuing life of the race, rather than our individual life-spans, as the Broodmaster has decreed.

"Third, we have an ingrained loathing for killing or violence."

That cheered me quite a bit, although I don't think I was really scared with Finn around. That guy could use this Earth to light a cigar with if he had a mind to. Besides, if the Krundai had intended us harm, it seemed to me they'd have done so centuries ago.

"We realize," Raksha went on, "that such things must be: the prime datum of the universe is that life survives by eating life, and no other way. The expense of eating is, in great part, the resistance the second life offers to being eaten. For instance, the roast beef sandwiches you have provided for your friends, Mr. Callahan (and by the way they are easily the thickest I have ever seen in a tavern) are cur-

rently quite expensive, because of the size and unwieldiness of the system required to supply them to us.

"Suppose you could induce the cow to come here and drop obligingly dead next to your chopping block?

"Still, there are some who prefer not to do their own butchering. No Krundai will do so voluntarily if it can be avoided. A surprising percentage of your own society, with all your heritage of murder, would like to believe that life survives by going to the supermarket. So the ideal would be to train cattle to make butcher knives and take turns cutting each other up at a convenient location."

I didn't like the turn this story was taking.

"Which brings me to the fourth significant fact about my people. We have made an exact science of sociopsychology, both Krundai and animal, and refined it beyond your imagining. The closest things you have to it, I suppose, are what you call mob psychology and the actuarial tables that your insurance companies use, and you do not even know why they work. The principles behind them, however, are universal, and part of a grand picture which your race will probably never perceive. One of your great writers invented something akin to it called 'psychohistory,' but even that unfulfilled daydream pales beside our knowledge—for psychohistory worked only for humans, and could not predict the appearance of genius or mutation. We can manipulate any sentient race that lives, or produce geniuses to order by manipulating society's laboratory conditions; and the nature and causation of mutation are fundamentals of Krundai psychology.

"Of course, like psychohistory, our science works best in the mass, imperfectly with regard to individuals. You humans at least are aware of that supreme paradox—that free will exists to an extent for the individual, but disappears in the group—although you can't work with it. Brood!—you haven't even learned how to measure emotion yet! But we can predict the effects of even one man's actions on the society as a whole . . . and we know how to bring about the effects we desire, large scale or small.

"Which leaves only one more basic attribute of my people: we are very, very hungry."

I had a ghastly feeling I knew what was coming next, and I didn't like it. The horrible suspicion that Raksha's words were building in my brain answered far too many questions I'd never been satisfactorily able to explain before.

"So that's how that guy got elected," Callahan breathed, and I winced.

"Precisely," Raksha agreed. "You begin to understand why I am here."

"Lay it out, brother," Tony said grimly. "I think I get it, but I hope I'm wrong."

Raksha spread his hands. "Very simply, gentlemen, for nearly two thousand years your planet has been a Krundai game preserve."

"God bless my soul," said Doc Webster. I looked at Callahan: his face was expressionless, but his eyes were like coals. Tomorrow that table would have inch-deep fingerprints where Finn was holding it.

"For most of that time," Raksha continued, "the Krundai stationed here made no attempt to do more than control your population, inhibit your social evolution and enforce your ignorance. A war here, a philosophical revolution there, discredit a few thinkers and discourage a line of inquiry or two—elementary maintenance. Rome, for instance, got entirely too civilized—even assassinating Caesar didn't help. Before too long they began to look like they were developing a rudimentary medical science and cutting down the mortality rate.

"So we induced cultural decay, and added some hungry barbarians we found conveniently at hand.

"We went on in this manner for hundreds of years, allowing just enough growth to preserve vigor, letting you graze freely. We had quite a bit of trouble with plagues—you're frankly not very clean animals—and finally we decided to let you play with medicine as a simpler solution than running around stamping out an epidemic every few years. There was always war to use as a control—and anyway, there was plenty of pasture.

"About three hundred years ago, we were notified by Krundar to go into active status and step up production. A food shortage had been predicted, and we were told to expect at any time the order to begin harvesting the herd we had bred and tended so long. We began incubating North America.

"We tripled the usual propaganda to reproduce, filled the continent in an absurdly short time, and encouraged immigration with massive word-of-mouth advertising campaigns about the golden land across the sea, where freedom rang and the streets were paved with gold. It took a bit of finagling to keep Britain from flattening you at the start, but we were in—for us—a hurry. After the requisite wars, we lowered the death rate considerably to compensate, and began to intensify our efforts.

"A hundred years ago, we received the last command. We have been preparing you for the slaughter ever since."

"Jesus, it figures," Bill Gerrity cried.

"You bet your sweet life it figures," I snarled. "After thousands of years of recorded history, in seventy-five years we go from the airplane and the Ford to the cobalt bomb and the energy crisis. From

corn liquor to psylocybin. From young giant to tired old fraud. From . . ."

"Knock it off, Jake," Callahan rapped.

I shut my face. Callahan turned back to Raksha, put his huge meaty hands palm down on the table. "Go on," he said darkly.

The Krundai's fur bristled, and his eyes rolled in his head. Somehow through my rage I understood that this denoted extreme shame in one of his race, and began to cool off some. The air of calm he had worn was shattered now; he was clearly agitated.

"Humans, hear me," he intoned. "Hear my sins, hear the catalog of my infamy before you judge. *This is not easy to tell, and I must.*"

"Let him speak," Finn said dispassionately.

"We . . . I and others . . . instituted an explosive increase of knowledge in the physical sciences, smothered or subverted all the social and spiritual sciences. We cranked your technology to a fever pitch of frenzied production, led you to build yourselves a suicidal ethos and culture, gave you toys like the atom bomb and lysergic acid to play with—we gave a loaded gun to an infant. We manipulated elections and revolutions, staged assassinations, encouraged government to calcify beyond the ability of its people to endure, touched off riots and did all we could to bring into the minds of men a frustration and a terror that would lead inevitably to chaos. You, the steers, are nearly ready to butcher yourselves for our tables."

"I don't believe it," the man in the fireman's costume burst out. "This is crazy, what you're saying is crazy, just plain nuts. What the hell is this, anyway, some kind of a rib?"

"He's serious, Jerry," Callahan said calmly.

"The hell he's serious, Mike, did you hear what he said? You telling me you believe this stuff?"

"Jerry's right," the duck said. "This guy's nuts."

"Oh, you *fools*!" Raksha burst out. "Are you too ignorant to see the pattern? Your whole history makes sense only by positing the most farfetched twistings to human nature. Use Occam's Razor, by the Brood—could any race be so suicidal and have lived for this long? Do you really think it accidental that your people went from outhouses to zero-gravity toilets in half a century? From the *Merrimac* to Skylab in one short century? By our own standards we have turned your planet upside down in a twinkling—are your lives so short that you have not perceived their acceleration? The pace of progress yanks you ahead faster than you can run—do you not *notice?*"

Callahan looked across the crowded, oblivious room to Tom Hauptman behind the bar. "Some of us notice," he said softly.

The fireman shook his head. "I don't buy it. That sounds like some crazy sci-fi notion. Conspiracy of aliens my foot, I don't believe in little. . . ."

". . . green men?" Raksha finished. "The signs are everywhere around you, Jerry. The squelching of the Air Force's study of unidentified flying objects should have alerted anyone with eyes and ears—save that we had carefully engendered a climate of ridicule and disbelief. We have become more cautious since then. But look beyond the physical evidence: do you believe it blind chance that physics has leaped vast spans while psychology muddled off into blind alleys? Do you really believe man so incurious about himself that it has taken him thousands of years to undertake a science of sociology? Do you think it simply bad luck that the technology of your survival systems, of your food and water and power distribution networks, consistently failed to keep pace with population increase and are already strained to the failing point, even in the face of a technical revolution?

"Does it make sense that after living side by side with natural hallucinogens and drugs of all types for millennia, men have suddenly become dependent on them? Has the worldwide depression, economic or spiritual, escaped you? Does it not surprise you that no language spoken by any people on Earth corresponds with observable reality? Did you think the simultaneous collapse of an ages-old ethical system and a two-century-old value system to be an unfortunate happenstance? You Broodless fool, *did you really think God died of natural causes?*

"No, my friend. Charles Fort was quite correct: you are property, and on the whole, not very bright property. You follow your political and philosophical leaders blindly to the slaughter, and one in a hundred of you is a Telasco or a McConnell, with the sense to pull out of the mad death-race. *You* must see it, man," he said to Telasco, "you rejected the world we Krundai made for you."

"Jerry," I said, "one of my most precious possessions is a lapel-button, white with black letters. It says, 'Go Lemmings Go.' Raksha is telling the truth."

The fireman shook his head like an aggravated bull. "This is crazy," he repeated. "How can you be telling us all this? I mean, if you're right, what makes you think we won't tear you to pieces?"

"This is Callahan's Place," the alien said simply. "I am here for absolution."

That brought us all up short, even Jerry. He stiffened; his mouth was open but there were no words in it.

"Why?" cried Doc Webster in agony. "How could a race so old

and wise be so savage and murderous?"

"We are not," Raksha returned, agony in his own voice. "You kill animals for food—we have never killed for ourselves."

"People are not animals," Tony said with quiet force.

"To my people you are," insisted the green man. "You lack a . . . an attribute for which there are naturally no words in your tongue. That attribute is central to the Krundai; without it, even if you went to the Great Pouch at the end of your days, you could not suck. To us you are less-than-Krundai. The Sign of the Brood is not upon you: you are food. My people feel no more guilt over engineering your destruction than you would if you could talk a cow into butchering itself."

"Why all this dancing around?" Callahan asked him. "Why not just wipe us out? Sounds to me like you've got the moxie."

"I have told you," Raksha cried. "We abhor violence. The fact that you can be induced to inflict it upon yourselves is, to us, proof that you are food, less-than-Krundai. If you and other races did not spare us the necessity, we should be forced to kill our own food like beasts. But the Great Brood saw our needs and fashioned the lesser races to breed and feast upon without the need to nurture violence in our own hearts. First the winged, heat-seeking *Fleegh* of Krundar, which fell from the skies into our fires; then the blue-skinned ones of our neighbor planet, who destroyed their atmosphere just before we developed interplanetary travel; then the *Krill* from a nearby solar system, who warred to extinction among themselves. It has always been so—it is unforgivably bad form to slay one's meat oneself. It indicates that one is not in the favor of the Brood."

"When did your people begin sort of . . . *encouraging* the food into the pot?" Callahan asked.

"So long ago that it would be meaningless to you," Raksha told him. "We learned early that the gifts of the Brood are not free—we must labor for them, to earn a place in the Pouch."

"I still don't see how you could have done it," Lipsky said, baffled but believing now, convinced by the pain in the furry alien's voice and the aura of shame on his inhuman features.

"In the same way that you once induced town officials and planners to do what they knew was insane," Raksha explained, "by appealing subtly to their own self-interest. We ran a continuous and subtle propaganda campaign, took away any valid reason for living other than personal enrichment and comfort, and then saw to it that the immediate personal interest of millions of people served our ends. One of the simplest methods was to instill in an enormous number of people the

compulsion to amass more money than they could possibly use: a large number were successful enough to leech national economies into anemia. Another was to whip up an intense interest in sex, far beyond the demands of nature, to keep population growth beyond your capacity to adapt—the Pill nearly balked us until we were able to discredit it, and much work was required to squelch interest in space programs before they could provide an escape valve. You humans are so shortsighted, your lives are so short—it is easy to manipulate you."

"So what changed your mind?" Callahan asked. "You personally, I mean. If we ain't fit for this here Pouch, why are you spilling the beans?"

"I . . . I . . ." he stammered.

"We're nothing but dumb animals, right? Well, Colonel Sanders doesn't apologize to the chickens. *Why are you here?*"

The green man groped for words, his pointed ears waving nervously.

"I . . . I don't know," he said at last. "I cannot satisfactorily explain it to myself. There is a climate of belief which runs through all your thought and literature, a conviction that you humans have a higher destiny. This idea has been of use to Krundar many times, but we did not create it—it was there when we came. It may be that it is contagious. I do not know; there is something about you humans, a . . . curious dignity that upsets my heart and troubles my nights."

Finn spoke up, startling me. "I think I know what you mean, friend Raksha," he said in that flat voice of his. "Michael," he went on, turning to Callahan, "do not be so sure that Colonel Sanders does not apologize to his chickens, as you put it. I have myself brought about the extermination of several races, in the days when I served my masters, and yet last week when I slaughtered my pigs, I grieved for them. They were stupid and dirty and mute—but even a pig may have dignity.

"They did not, could not, comprehend why they died—and yet in an irrational way I wished I could explain it to them." He turned, spoke again to the furry Krundai. "I believe I understand your motivation," he said. "I felt it too, and forebore to destroy this world once. It seemed a planet of madmen—although much of that appears to be the doing of you and yours. But I knew that not, for you were well hidden.

"Yet still I stayed the hands of my masters, betrayed my purpose, because I learned here in this room that men have love."

"That is the quality I looked for in selecting a human audience," Raksha admitted. "The thing you call love we Krundai had always found to be a symptom of the attribute I spoke of earlier. That hu-

mans possess the symptom without the attribute is one of the great anomalies that complicated my thought and delayed my confession until now."

"This propaganda stuff you talked about," Callahan persisted. "I still want to know how you put it across. Whisper in the Wright Brothers' ear? Write newspaper editorials? Spread rumors?"

"Sometimes," Raksha said, and hesitated. His features assumed a deeper green. "And sometimes," he went on with obvious reluctance, "by direct intervention."

"Disguised as humans, you mean? Fifth Column and all that?" The big redheaded barkeep seemed to be prompting, seeking something from Raksha that I couldn't figure out.

"All the Krundai on your world have, at one time or another, impersonated humans for varying reasons. One of us was Saul of Tarsus, another Cesare Borgia, another Thomas Jefferson. Otto Hahn was yet another."

"And you," Callahan went on implacably. "Who were you?"

I remembered suddenly how long ago Raksha had said he began to regret his job, and my blood went cold as ice.

"I . . ." he said, biting the words off with an effort, "I was known to men as Adolf Hitler."

The silence was a living thing that gnawed at our reason, paralyzed our thought. All around us, a party continued insanely, heedless men laughing and dancing, the four gorillas in the corner playing poker. There was not a damn thing any of us could say, and after a time Raksha went on listlessly. "It was an easy role to play. It took no significant fraction of the training I had received in crowd control. It was so easy that I had time to think, to observe, to learn firsthand what I was doing.

"Perhaps it was because I was born here, and have seen Krundar only once. For whatever reason, I began to doubt; subconscious uncertainty spoiled my work. The major purpose of that campaign was to prolong hostilities long enough to force the development of atomic weapons, and I nearly succeeded in aborting the mission by folding too quickly. But my colleagues were able to redeem my error by drawing out the Pacific conflict just long enough. I told myself my depression was the stigma of personal failure, but I knew that it was in fact the repair of my mistakes that unsettled me. I have thought on it long and hard since, and now I am here and I have spoken."

Doc Webster produced a hip flask from somewhere on the south slope of his belly, upended it and slapped it down empty. On all sides of us, people drank and chattered and laughed, oblivious to the drama in their midst.

The Doc found his voice some-

place; it sounded rusty. "What do you want from us?" he croaked.

"Absolution."

I looked at Tony and Jerry and Finn, winced as I thought for the first time in months of my dead wife and child, killed years ago in a crash when the brakes I installed myself to save a buck, failed. This was the place for absolution all right—it was Callahan's stock-in-trade.

The brawny Irishman's voice shocked me when he spoke: it was as cold and hard as an ax head in February. "That word has another word in it," he said. "Solution. First let's find a solution, and then absolution will take care of itself. How can you stop this pogrom?"

Raksha's fur bristled; he looked flustered. "I cannot," he wailed.

"Can't you talk your people out of this?" Sam Thayer asked. "Won't they listen to you?"

"Impossible," the alien said flatly. "They could not conceivably understand my words—I am not sure I do myself. Have vegetarians made any real impact on your planet?"

"They have wherever they could convince folks that a cow might have a soul, like in India," the Doc asserted.

"But you *do not have the attribute,*" Raksha insisted.

"I don't know what the hell this attribute is," Callahan growled, "but I get the idea we have the potential for it; the symptoms, I believe you said. Could it be we never developed it because our people have been under the . . . protection of yours since our infancy?"

"No Krundai would believe that," Raksha replied. "If I voiced these opinions, I would be judged insane and induced to suicide."

"Can you sabotage the campaign?" Telasco asked. "Join our side and be a guerrilla? With you to help we might . . ."

"No," Raksha said violently. "I cannot betray my people. It is unthinkable."

"It was unthinkable for me once," Tony persisted. "But when I saw what I had become, I repudiated what my people were doing, worked to stop it."

"You do not understand," Raksha hissed, "You are *less-than-Krundai*—and this Finn may belong to a powerful, warlike race, for all I know. I have committed an unthinkable crime by relying on your discretion and telling you all this—I can do no more."

Tony had a soldier's tactical mind. "Can you tell us where and how to locate your people? *We'll* stop them."

Finn spoke up before Raksha could answer. "That is not . . ."

". . . possible," Callahan finished quickly, and I got the funny idea he'd kicked Finn's shin under the table. "If these boys led us by the hand to the atom bomb, there

ain't a lot we can do to stop them, Tony."

"But . . . ouch," said Finn, and shut up.

"No," Callahan went on, "if anyone can help us, Raksha, it's you. Or did you just fall by to make a headsman's apology?"

"I can do nothing for you," Raksha said miserably. "I seek only absolution."

"Brother," I said sympathetically, "you're caught between a falling rock and a hard place." Sam and the Doc also began to make noises of commiseration, and Bill Gerrity started to ask Raksha what he was drinking. Just the men of Callahan's, offering understanding and help, as always.

But Callahan raised a hand. "No," he said quietly. We stared at him, stunned—*Callahan* withholding absolution?

"You can't drink in my bar, brother," he said, staring Raksha in the eye, "and you can't have our forgiveness. There's a price for absolution on this planet, and it's called penance. Tony here got arrested for VVAW demonstrations; Finn here exiled himself among a lot of obnoxious, smelly humans for the sake of the ones worth saving. Buddhist monks who couldn't influence their governments any other way set themselves on fire, by Christ, and for their souls I pray on Sunday. What do you figure to do for atonement?"

Raksha closed his eyes—they were double-nictitating—and knotted his brow. He was silent for a long time.

"There is nothing I can do," he said at last, his voice hollow and bleak.

"Then there is no absolution for you," Callahan said flatly, "here or anywhere. Get out o' my joint and don't come back."

Raksha's face fell, and for a timeless moment I thought he was going to cry, or whatever Krundai do that's like crying. But he got hold of himself, nodded once, rose and left the bar, shouldering party-people aside as he went.

There was another silence when he had gone, and we all looked at Callahan. His jaw was set, and his eyes flashed, challenging us to criticize his judgment.

"Were . . . weren't you a little harsh on the guy, Mike?" Doc Webster asked after a while.

"Hell, Doc," Callahan exploded, "that clown was Adolf Hitler! You want me to pat him on the head and say, *It's all right, you were only following orders?* Christ on a minibike, if it wasn't for him and his kind, I might not have to run this goddamn bar. And my bunions give me the dickens."

"I grieve for him," Finn said emotionlessly. "I too was once in a similar position."

"Save your grief, Finn," Callahan spat. "You had the same choice, but you followed through. And you weren't gutless—you were

counterprogrammed. If you could figure a way around the sheer physical limitations of your machinery, why the hell couldn't he overcome his conditioning? Conditioning isn't an excuse, for humans any more than Krundai—it's an explanation. Thanks to you and the work you're doing, the Gaspé may be prosperous farmland someday—you're still paying your dues. But that guy didn't want to atone—just apologize. He and his kind made this sorry old world what it is today, and I could forgive that. But I don't give absolution free. It costs, costs you right in the old willpower, and he wasn't willing to ante up. Screw him, and the horse he rode in on."

"I still think we should have jollied him along and tried to pump him, Mike," Tony said insistently. "How are we gonna find them to stop them now?"

Callahan looked tired. "As Finn started to say before I tromped on his toes, that ain't necessary. Now Finn knows they're here, he can find 'em for us as easy as you could spot a wolf in the chicken coop. That wasn't the prob—"

There came a shattering roar from outside. The building rocked; glass sprayed inward from the windows and bottles danced behind

IN TIMES TO COME

Roger Zelazny returns to lead off the November issue with "Home Is the Hangman," a study of dedication and duty, and the difference between a human and a robotic interpretation of these terms. The cover painting is by Vincent Di Fate.

In our February issue, the Editorial, "Culture Lag," asked why the nation's anthropologists haven't come out of their ivory towers to make the kinds of contributions we so desperately need in domestic and foreign policy, contributions based on their knowledge of human culture and behavior. Paul A. Ballonoff and Sue Ellen Jacobs, who have seen the problems firsthand, answer with a Guest Editorial, "Culture Laggards," that shows what the anthropologists have already done—and what they haven't.

The second instalment of Joseph Green's novel, "Star Probe," continues the struggle between the ecology-fixated FOE activists and Hal Hentson, who's willing to risk his own life as well as his son's (and his dead father's) to reach the alien space probe that's hurtling toward Earth.

And James Oberg, whose prophetic "The Legacy of Apollo-Soyuz" graced our August issue, is back with a closer look at those one-man re-entry bailout kits—among other devices—in a science fact article called "Space Rescue."

Looking farther ahead, future issues will feature stories by Poul Anderson, Bob Shaw, Frank Herbert's "Children of Dune," a new novel by Richard and Nancy Carrigan, and a novel by Robert Silverberg.

the bar. Everyone began to shout at once, and most of the boys made a beeline for the door.

Only Callahan of all of us failed to jump. "Like I said, no guts," he said softly. He rose quietly, walked through the suddenly-uncrowded bar to the chalk-line before the fireplace, picking up somebody's drink as he went. He looked surreally absurd in that damned bear suit he still had on, balding red head sticking out the top like a partly-digested meal. He stood gazing into the flames for a moment, gulped the raw liquor and spoke in a clear, resonant baritone.

"To cowardice," he said, and flung the empty glass against the back wall of the fireplace with a savageness I had never seen in him before.

Fast Eddie stuck his head in the door. "God damn, boss, de whole unprintable parkin' lot blew up."

"I know, Eddie," Callahan said gently. "Thanks. Anybody hurt?"

Eddie scratched his head. "I don't t'ink so," he allowed, "but dere's a lotta dead cars."

"Least of my worries," Callahan assured him. "Call the cops, will you? Tell 'em whatever you like." Eddie got busy on the phone.

Callahan came back to our table, stood over Finn. "Well, buddy, what do you say? Can you take 'em?"

Finn looked up at him for a while, figuring some things. "That blast was powerful, Michael. They must have strong defenses."

"That's why I stepped on your toes and let that joker go, Mickey. If you two tangled in here, we'd have lost a lot more'n a few cars we can't gas anyway. But you heard what he said about violence."

"They abhor it," Finn agreed. "Even if they will employ it in self-defense, they are unused to it. Michael, I can take them. I will."

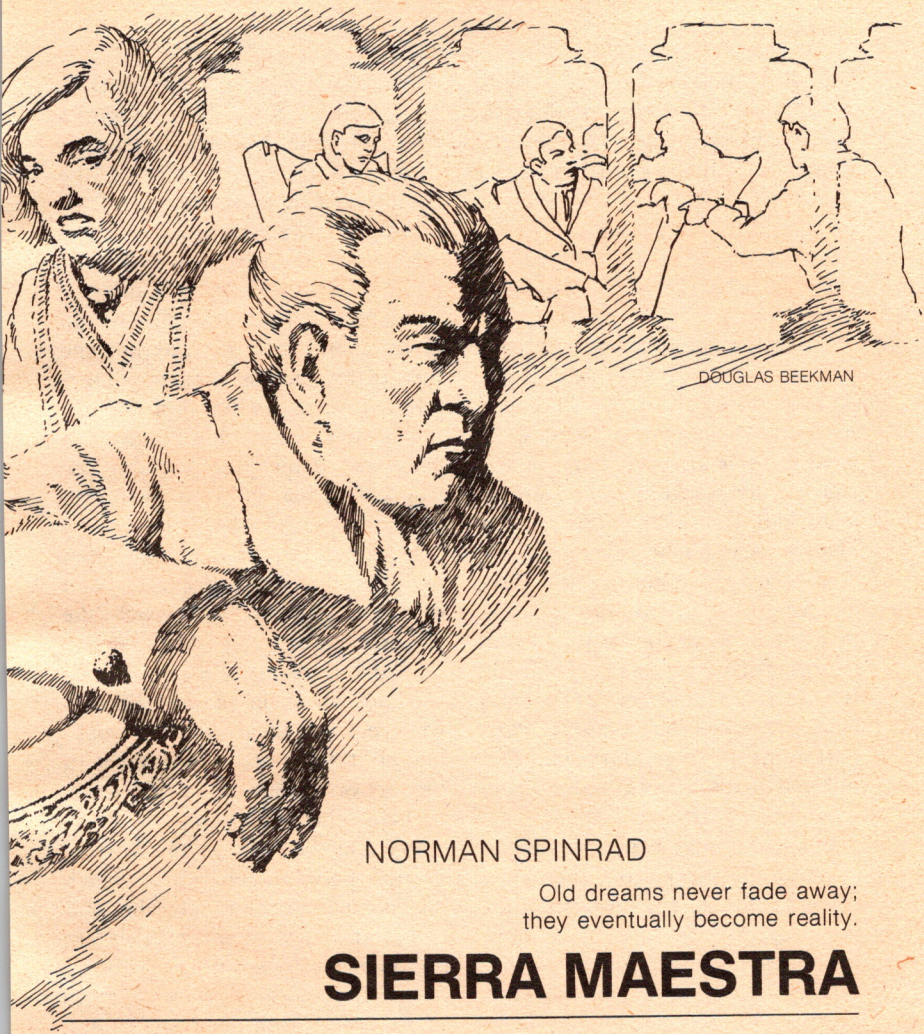
He rose and left the bar.

"Thanks, Mickey," Callahan called after him. "I reckon your dues are paid in full."

There's been a lot of noise in the papers lately about the series of seismic shocks that have been recorded over the past few weeks in the unlikeliest places. An unpredicted miniquake every day or two for three weeks, culminating in a blockbuster where no quake had a right to be, is bound to cause talk.

The seismologists confess themselves baffled. Some note that none of the quakes took place in a densely populated area, and are reassured. Some note the uniquely powerful but strictly local intensity of the shocks, and are perturbed. Some note the utter inability of their science to explain the quakes even after the fact, and fear that the end of the world is at hand.

But me and some of the boys at Callahan's Place suspect it's more like the beginning. ■



DOUGLAS BEEKMAN

NORMAN SPINRAD

Old dreams never fade away;
they eventually become reality.

SIERRA MAESTRA

Sitting here on my mountaintop watching their world crumble, I feel, at this advanced age, neither elation nor remorse, only the entropic force of history following its inexorable course. Did Fidel Castro feel thus watching the Batista regime sagging into decay from its own weight from his remote stronghold in the Sierra Maestra? I doubt it, for Fidel was a much younger man and those were much younger days when revolution was a word we all took seriously and literally.

But de Gaulle, waiting in haughty isolation as the Fourth Republic slowly collapsed toward his inevitability, and Juan Peron, watching Argentina flounder in the vacuum of his long, long exile, I think, would both have appreciated the irony of what I feel as this night slowly falls.

Far below me, Central Park is an oblong island of darkness in the pattern of lights that still covers most of Manhattan, a foreflash of what is soon to come. Even now, I can see the blackout rolling up the West Side from 34th Street to 59th, and the searchlight beam of a police helicopter probing the dark and empty streets for the creatures of night. It is all too easy to fantasize guerrilla armies marshaling in the secret shrubbery of permanently blacked-out Central Park, battalions of legendary muggers imbued with revolutionary consciousness at last.

But such fantasies are for the police, peering down from their helicopters into the shadows. In truth, the muggers are long since gone from the Park for lack of victims mad enough to brave the blackout, deprived of prey by the power of their own mystique. It is even possible to sympathize with them; in the early days of the blackout there must have been a time when they lurked behind their bushes fondling their saps forelornly like Indians hopelessly waiting the return of the buffalo.

Automatic weapons fire crackles and sparkles for a few moments over the mid-40s and helicopters begin to converge. Watching the beams of their searchlights and listening to the ominous whunk-whunk of their rotors from my penthouse balcony, I feel a surge of adrenaline course through my old arteries, and it is easy to imagine this as the opening rounds of long-awaited Armageddon. But the firing is over before this fantasy can even take shape—just a routine patrol taking pot-shots at suspected looters in the free-fire zone.

I take a last private toke from my joint, fling the still burning butt over the parapet, and watch the glowing ember fall thirty stories into the darkness. "Roaches," we used to call them in the old days when pot was illegal and the smoking of it therefore a sacrament, a tiny act of revolution. In that sense, perhaps, the legalization of marijuana may be seen as the last act of true political cunning of which our enemies were capable, the final co-option. Now, of course, they are no longer capable of even being our enemies—we all become allies of necessity against entropy in the end. How foolish it seems, to have waged such a protracted and debilitating struggle over the THC molecule. But then, haven't men fought longer and deadlier wars over pure symbols like the cross, or even the interpretation of random snatches of scripture, while the true enemy

of us all cackles up there in the vacuum?

The burning ember, like its half-forgotten symbolic import, disappears into the arms of darkness, and I finally turn and walk back into my chambers to confront those who have gathered at my bidding. How spiderlike that thought seems as I think it. How spiderlike we have become in our long secret sojourn in the Sierra Maestra of the soul. Have we finally made ourselves unfit to wield power by the very process we have put ourselves through in order to ensnare it? I smile ruefully and feel more at peace as I encompass the reality of this moral doubt, for only when those who wield power maintain a healthy fear of being wielded by it may justice yet live.

As I walk into the plushness of my huge living room and see those who have gathered there, I am suddenly struck by the unpleasant realization that we all have become old and we all have become rich. In the old days, we feared the one and at least professed to eschew the other. But we chose long ago not merely to survive but to attempt to prevail. To accumulate power without spending it is to accumulate money, and to acquire wisdom and patience means accumulating years. So here we are, heirs and paladins of what began decades ago as a "youthful rebellion" about to come into our own as graybeards and elder statesmen. We believed in those days that no one our present age was to be trusted; hopefully this lesson has been deepened and enriched by irony, rather than unlearned. If we can be rulers who do not trust ourselves, America may yet be salvaged.

"Heavy thoughts?" Sandra says. Once, in Berkeley, in the flush of the '60s, we were lovers, and once again, longer and deeper, in the '80s. In the wrinkled parchment of her face, I can see the young girl inside her, and the full blossom of her beauty in middle years. I have loved them both and some part of me loves them still.

"We've become the people we warned ourselves about," I say, blunting the edge with slyness. "Old fogies conspiring to rule the world from a penthouse. Senators, Congresspeople, capitalists and media barons."

She laughs her bright changeless laugh as we walk across the room to the square of sofas where the others are waiting, and it drives the shadows from my mind. Long ago, she was with me when we so solemnly dedicated our lives to changing the world by next week, and later we were together once more when the Compact was made and we all went our long-term temporary ways to infiltrate by osmosis. Always that laughter made me sing inside, and now I suddenly decide that when the inevitable occurs, Sandra will be with me again, as

my Vice-President. Thus do we decide high policy, and why not, it is part of what makes us who we are. We shall be a government not of laws but of living, feeling men and women, a government not of structures but of souls. Still, I cannot help but feel the shade of Juan Peron smirking knowingly over my shoulder in this moment.

As Sandra and I seat ourselves together, I feel the eyes of the others following my movements with a new and disquieting expectancy, as if I am already a figure in some historical diorama, and it seems as if I can already feel the leaden mantle of state falling upon me. Fear comes over me, a ghastly sort of loneliness, a pall of isolation descending. And I resolve that as President I will walk the streets and eat in the restaurants like an ordinary citizen. Better to risk assassins' bullets than this terrifying and certain distancing, this death-in-life. It will be called bravado. Only I will know that it is fear.

"*Mr. President,*" Bart Lorenzi says with gentle sarcasm, and the rest smile. This is as close to a vote as we are prone to come. We have known each other, our destinies and our trajectories, for so long that nothing beyond this is necessary. We are like a family, each with his role, each with his place.

"Aren't you being a bit premature?" I say archly, and at this we all laugh together, for the pattern that has brought us to this moment is decades old, built slowly and carefully like a stone cathedral, no hot-blooded coup d'etat.

As medieval architects drew up plans for cathedrals whose completion they would never live to see, so did we draw up the Compact and assign ourselves our eventual positions in the completed structure according to our inclinations and opportunities. Bart Lorenzi to become our banking baron, financier of industries and minor governments, initmate of the Gnomes of Zurich. Eric Winshell to move slowly up the hierarchy of the State Department into his present position. Warren Hinckly to build Ecomotors General. Ted Davies to ascend to the Joint Chiefs of Staff. Sandra, Lillian Margulies, Julian Clay, Fred Banyan, Roger Pulaski to cautiously, quietly, and carefully move upward through the conventional political processes until now we have a Chairman of the House Ways and Means Committee, Senators and Representatives of high seniority and Sandra as Speaker of the House.

All of us accumulating subordinates and allies personally loyal to us on our way up, secreting them into the interstices of government, finance, industry, and the military, furthering their careers discreetly as best we could, until now the score of people in this room represent the tip of an enormous iceberg. Not a conspiracy, but an in-

finitely subtle web of personal loyalties, shared consciousness, common goals, and yes, love.

And I too was chosen for my distant destiny long decades ago. In a sense, I have been running unsuccessfully for the Presidency for a quarter of a century—first almost as a national joke; then as a visionary from my secure Senate seat, accumulating weight and solidity; now, finally, as a remote elder statesman whose old prophecies have long since come to pass, whose far-out and impractical proposals are now seen by the millions as the right roads not taken in the easy clarity of failure's hindsight.

No, there is nothing like prematurity here.

Roger swirls his glass of bourbon, cubes of ice tinkling against the glass, talisman of long years cultivating friendships with southern Senators. "Just got the word from the White House. The Vice-President's letter of resignation has arrived. Your appointment to succeed him will be announced tomorrow morning."

I nod. Even this endgame strategy has been planned for decades. The Agnew resignation and the Nixon impeachment pointed the way back in the '70s. The Vice-President resigns or is removed, the choice of a new Vice-President is forced upon the President, he is confirmed by Congress, then the President resigns. Technically, all that is required is Congressional acquiescence to the choice of an incumbent President and the necessary leverage on two men. And Constitutionality is scrupulously maintained. In the beginning this did not seem important to us, but now the decades have taught us the wisdom of remaining within the Constitutional framework. Once the Constitution is successfully breached, the entire document is destroyed and we become a nation of tooth and claw. I shall not play Caesar to our republic.

"Do you expect any trouble in the Senate?" Sandra asks.

Roger shakes his head. "We've had the votes for a long time. Sanderman may try a filibuster, but I think we have the votes for a quick cloture too."

"Sanderman won't try it," Bart says authoritatively. "I've bought up his notes on that Coastal Island development and he's been made to understand his position."

"It's all in place," Julian says.

The words are like the final stone placed at the top of the last cathedral arch. The coup—and I might as well admit to myself that it *is* a coup d'etat, albeit a Constitutional coup—is but the mechanism for bringing about the technical transfer of power, for midwiving the inevitability we have engineered. For catching the ripe fruit dropping from the tree of history, if one prefers a more dialectical viewpoint.

I turn to Katherine Broxon, publisher of *Time* since Bart acquired it for us seven years ago, and cock an inquisitive eyebrow. "We're printing already. The cover story on the President hinting at his failing health. He'll be able to step aside gracefully."

"No problems with recognition," Eric says. "Even the Japanese will be relieved to have you in office. At least for the time being."

"The polls?"

"It'll be one big sigh of national relief," Katherine says. "The people don't want to wait till the next election. The mood is that they've waited too long already."

I relax against the plush piling of the couch. In addition to a Constitutional coup, we are going to have a democratically approved coup like the return of de Gaulle in '58 or that of Peron in '74. The people are bone-weary of economic depression, fading electrical power, unemployment, permanent inflation, protein starvation, and a government that can only throw up its hands and admit its helplessness. Like a hard granite boulder buried under geological layers of soft sandstone, we bided our time, content to merely endure until the inevitable forces of erosion ate away the strata around us. Until now we stand alone on the desolate plain, the only rock to cleave to. Until even our former enemies turn to us in despair.

I look slowly around the room, each face in turn, confronting each pair of eyes like tunnels through time, seeing beyond the gray hair, the tapestries of wrinkles, the succession of personas we have assumed down the decades, to the changeless essences within. Or changeless they seem from this strange perspective crosswise in time. Are we not the same beings whose eyes met in this same soul-to-soul contact so many years ago when the communal organism that we have become was given birth? In the long-gone terminology of the '60s, have we not remained forever young?

But why do I feel this blossoming of dread, this void unfolding the cold petals of its flower within me? Why do their eyes seem to recede down long stone corridors of perspective, why does my own living room seem like an immense cavern of millennial gloom rimed with the mineral accretions of ages?

I rise from the couch and I can feel the creakiness of my knees, the softness of my internal organs, and my head is like some great hollow globe tottering atop a fleshy structure grown too frail to support it.

"I think I'd like to be alone for a bit," I say, and the simple sentence sounds ridiculously theatrical as my mouth moves around the words; my movements seem exaggeratedly slow and fluid, pregnant with meaning, as I walk across the soft carpet toward the balcony. Images

out of films and history books pile up in my mind as I walk—Mussolini stepping out on his balcony to bask in the cheering of the masses, Imperial Caesars accepting homage, John Kennedy walking down a lonely beach with head bowed, white smoke rising over the Vatican and a sepulchral voice intoning, "*Habemus Papum.*"

But when I emerge onto my balcony, there is no sudden ovation, no waiting crowd; nothing greets me but the night. The blackout has spread itself over Manhattan now, only rectilinear islands of light remain in a sparse checkerboard pattern, and to the south the giant buildings of midtown are a cruel and jagged cordillera of dark mountains against a sky in which faint stars shine like the dying lights of America's faded glory far below. Police helicopters whunk-whunk over the somnolent city like carrion flies buzzing around a bonepile, their white searchlight beams moving like ghostly fingers over the empty streets. It is a scene, a moment, of utter loneliness, unfit for the eye of man.

I light another joint, take a tiny puff, and let it glow between my fingers as a candle against the darkness. I force myself to think of the future, of the weeks and months to come, of the "steps that must be taken," as the news magazines will phrase it. Bart will announce the forgiveness of the government notes he has bought up by stealth, nearly a quarter of the National Debt, and that will give the dollar a stability it has not had in decades. But banks will fall like Southeast Asian dominoes and the financial community will scream in rage. The hundred percent tax on profits in excess of ten percent will move the GNP toward full employment stasis, but industrialists and stockholders will fly into a fury as the stock market plummets, perhaps into oblivion. The ban on even private electric cars will hit the ordinary citizen in his pocketbook and his psyche, even though their largest manufacturer, Ecomotors General, will patriotically urge support of the move in the national interest. The food export quotas will make America an object of loathing in Asia and Africa. It is going to get so much darker before the dawn.

I am going to be a hated man.

This first cold realization squeezes my heart like a fist. No souls will sing at the sound of my name, no voices will cheer my motorcade. The transformation will be a decade in the making; I have always known it, but now I feel it in the hollow places of my brittle bones. I will not see the lights come on again, I will not taste the freshened air, I will not see the food factories churning out their endless bounty, I will never bask in the love of the people. I will be cursed and reviled and assassins will mutter my name as they oil

their guns in secret cellars. One day a bullet will burst in my brain, *sic semper tyrannis.*

I look out over the spectral city and doubt creeps into my soul. What if we were wrong? What if we have let too much history slip by as we waited in our Sierra Maestra for the day of vindication to arrive? What if it is too late; perhaps entropy has already won its final victory while we husbanded and conserved our lives and substances to no avail. Perhaps we should have risked all in hot-blooded revolution and died in fire rather than ice. We chose and we became that which we had chosen. Now as we come into our own, we have no choices left. I am one with the inevitability of history and I will never know whether for good or ill.

Nor will I be granted even the luxury of sharing my doubts, for now I must become a man of iron, a monument of stone, an icon of the certainty I can no longer feel. A current of wind whistles around my parapet. It is so cold and lonely up here on the mountaintop.

"Why is this night different from all other nights?" Sandra has come out onto the balcony beside me. I do not look at her. I do not have to, I can feel her presence with me; with me yet apart, for now even she will forever be distanced from me by the geometries of state. This is what we must share in this final phase, this is the dowry of our last affair.

I force a laugh, and an advertising jingle from the long-gone '60s. "We've come a long way, baby, to get where we're going today."

"A little afraid?" she says softly.

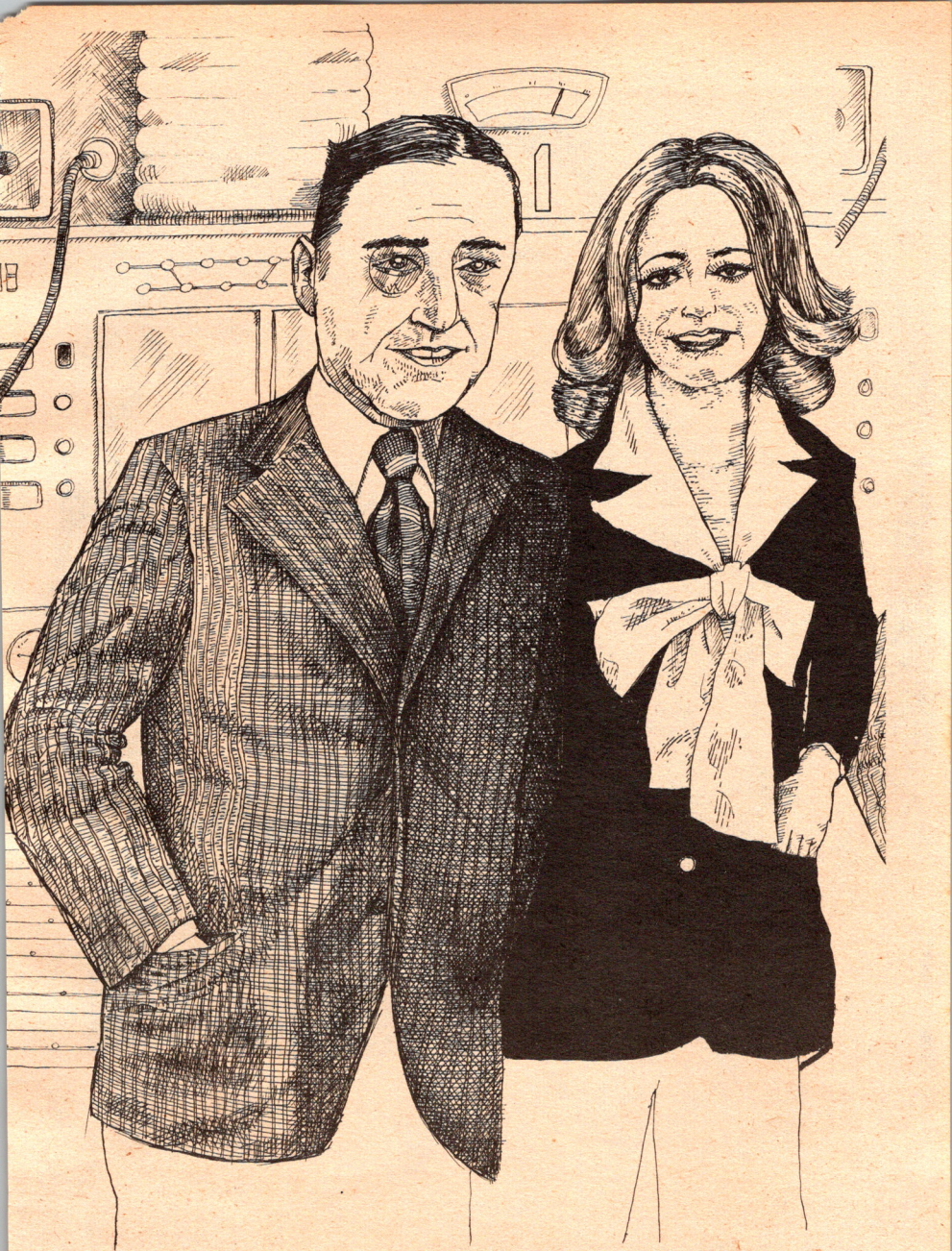
I nod. "And lonely." I suck on the joint and hand it to her. Let this cup pass from me, I think, knowing all too well that it will not. "This is as good a time as any to tell you," I say, grateful to move on to matters of state, already hiding myself in the machineries of power. "You're going to be my Vice-President." I allow her no choice, no pro forma gesture of refusal, as none has been allowed to me.

We turn to each other. She merely nods. There is no surprise, no false disclaimers, thank God. Our eyes meet over a distance that suddenly has widened. We take each other's hands and squeeze old warm flesh.

"It's getting chilly out here," she says, turning to face the lights of the living room where the others wait with questions of cabinet posts and policy with the eagerness of history waiting to be born.

I nod. "We've got to watch our health now," I say. "We're not as young as we used to be."

Hand in hand, our old bones creaking, we begin the march down from the Sierra Maestra, we descend from our mountain fastness to parade into the cities below. ■



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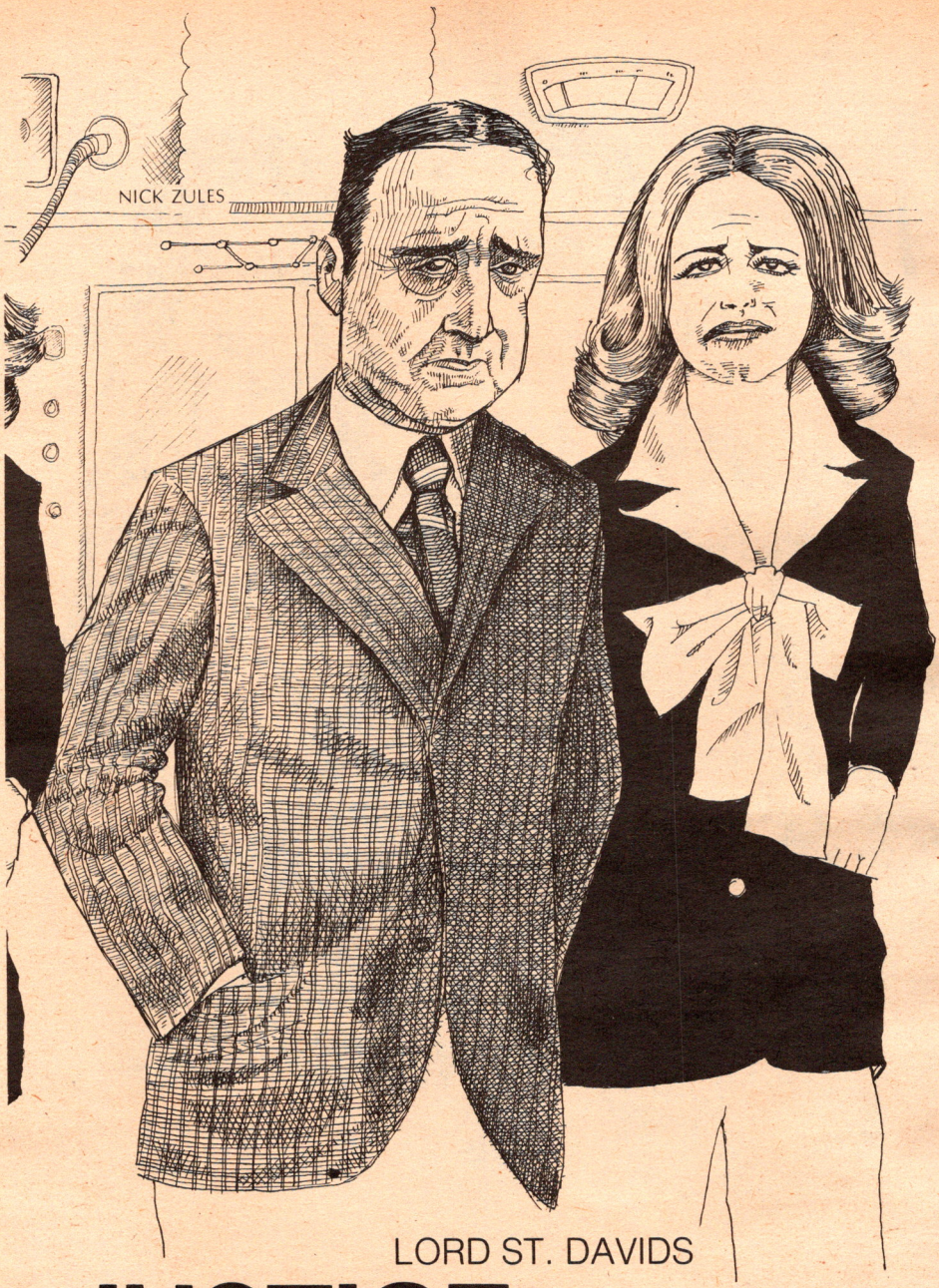

LORD ST. DAVIDS

JUSTICE

New technology always causes problems—and vice versa.

Chancery Division
Golding v. Golding
Golding v. Williamson
Before Mr. Justice Aubrey
by counsel, 30 February 1995

Counsel attending representing 253 interests, including:
Williamson Electronics
The Treasury Solicitor
The Public Prosecutor
The Social Democratic Party
The Conservative Party
The Kingdom of Mid-Arabia
The heirs to the estate of the late Lord Getty of Guildford and others

His Honor, in summing up, said:

On the face of it, this is a simple case based on one simple fact.

I am asked to grant letters of administration to Mr. Harold Golding on the estate of Sir John Williamson, said to be deceased, and on the estate of Mrs. Elisabeth Golding, whom Mr. Golding declares to be his deceased wife.

This plea is resisted by counsel representing persons who say they are the Sir John Williamson and the Mrs. Elisabeth Golding concerned, on the grounds that they are very much alive.

This is unusual, but the most extraordinary part of this case is the number and size of the public and private interests involved, all of which depend on this one ruling.

Apart from one divorce case and a possible bigamy case directly arising from the proceedings in hand, the indirect results could cause a flow of Death Duties to the Treasury which could call for a new Budget, a task rendered difficult by the further necessity arising from this case for an immediate General Election. Nor does the trouble end there. I am aware that the succession to at least one Throne is involved, and also a legal declaration as to who is President of the United States of America. It further appears that a number of Acts of Parliament may not have been legally passed, and that some Acts of the American Congress may also be invalidated.

Luckily all these great matters are not for me to determine, but just the one simple fact on which this case is based, namely, whether these two people are alive or dead.

I am happy to say that my task has been made easier by the complete agreement I have found among all parties over the facts and dates in this case.

It is the interpretation to be put on those facts, and their legal effect, which is in dispute.

Briefly, the facts of the case are these.

In the spring of 1993 Mr. Harold

Golding, a learned attorney of law, and his wife Elisabeth Golding, were living together in such contentment as is normal in marriage.

Mr. Golding, whose practice lies in the patents field, was approached by solicitors representing Williamson Electronics to advise them on the protection of the very valuable patents which they held.

No doubt this work was pleasing to Mr. Golding. It was a very valuable brief, and he was far from rich at that date.

Williamson Electronics was already a large and growing enterprise and its head a very rich man, though he had not then attained to knighthood nor his firm to its present stature of an industrial giant.

In the course of giving his advice Mr. Golding met Mr. Williamson, as he then was, and he and his wife were asked to stay at Mr. Williamson's house for a long weekend.

It is not in dispute that by the beginning of 1994 Mr. Williamson and the Goldings had become great friends.

It is not for this Court to comment on the statement of Mr. Golding on the nature of the friendship which developed between Sir John Williamson (as he shortly became) and Mrs. Golding, but is agreed that Sir John made Mrs. Golding the heiress to all his very considerable fortune in a will dated September 1994.

It was subsequent to that date that he announced to the world and first demonstrated his invention of the matter transmitter, and I think I must here repeat the evidence of Mr. Barnabas, Sir John's principal assistant, on how this transmitter works.

I agree with learned counsel that it would have been better if we could have had this description from Sir John himself, but I have had to rule, however absurd it may appear, that Sir John is only three months old, and so in law unfit to give evidence.

According to Mr. Barnabas the machine consists of two activated plates between which passes a ray which strips atomic particles down to basic electrical charges and transmits a complicated electrical signal, formed from these charges, to another set of plates elsewhere, where the process is reversed and the charges rebuilt into substance, causing the object transmitted to be removed from one spot and apparently reappear at the other.

It was at the public demonstration of this device on the 13th October 1994 that Sir John himself stepped into the machine. This is a matter of public record.

What is now in dispute is whether he ever stepped out, and the dispute also concerns Mrs. Golding, who shortly afterwards followed him through it.

There is no dispute on anybody's part that in each case something

was transmitted from the transmitter to the receiver, nor that this left the transmitter empty.

There is no dispute that there stepped out of the receiver, which had till then been empty, a person resembling the person who stepped into the transmitter in every way that we have been able to test.

The question in dispute is simple: Is what stepped out a copy or the original?

There are many cases in law where a copy is not as good as the original, and this is one of them.

An estate belongs to a person, and not to any copy or copies of that person.

A marriage is to a person, and no miracle of science, however perfect, can transfer it to someone whom the other partner did not originally marry.

For this reason I can accept as true the accuracy of the machine described by Mr. Barnabas which copies what it transmits without fault down to the position of every electric charge on every atom, without necessarily stating as a fact that the Sir John Williamson and the Mrs. Golding who stepped out of the machine are necessarily the same persons as those who stepped into it.

I am aware that the persons now known as Sir John Williamson and Mrs. Golding believe implicitly that they are the same persons who stepped into the machine, that they fully remember stepping in and indeed have full memories of all their lives before, but I do not find that gets me any further, as Mr. Barnabas has said, in his evidence, that the pattern transmitted is so accurate that no memories would be lost.

There is thus no evidence to be had from the people concerned, and I would have been at a complete loss had it not been for the very remarkable set of answers given by Mr. Barnabas when cross-examined by learned counsel for Mr. Golding.

I am referring to paragraph 1245 onwards, and I shall read it out.

Question: You say you transmit the signal on a tight beam?

Answer: Yes.

Question: Is there any reason for this? Why should you not broadcast it normally?

Answer: A tight-beam transmission can be made with less power, and also, of course, there is less danger of some other transmission interfering with the reception.

Question: Have you ever

tried broadcasting it?

Answer: No.

Question: Any reason why not?

Answer: None, except the ones I have given you. It just did not seem worth trying.

Question: What I am trying to get at is this: If you had put more than one receiver where it could receive the transmitted signal, would they each produce a specimen of whatever had been transmitted?

Answer: I do not know. I suppose so, yes.

Question: And would they all be perfect?

Answer: Given proper linkage between transmission and reception, I suppose so, yes.

This I find conclusive.

I am prepared to compose my mind to the thought of a person being somehow attenuated into an electrical signal and being subsequently recomposed elsewhere, but I cannot accept the idea of two or three, or ten or twenty exactly identical people all being the original one.

They would be copies, and no reasonable man would think of them as anything else but copies.

Indeed, they would think of each other as copies, and the fact is that not one would be the original and none nearer the original than the others.

I hold, therefore, as a matter of fact and law, that both Sir John Williamson and Mrs. Elisabeth Golding were killed and their bodies instantly destroyed when they stepped into the matter transmitter on 13th October 1994, and that what was transmitted was, in the words of Mr. Golding's counsel, "a blue-print—a plan for making a person. A very accurate plan, indeed, but still only a plan all the same."

I further rule that Sir John Williamson pre-deceased Mrs. Elisabeth Golding, so that all his estate and the rights to his inventions became hers, and that on her death a few minutes later all his and her estate passed to Mr. Golding under her will of 1991, and that no will of Mrs. Golding subsequent to the 13th of October 1994 can be considered as valid.

Mr. Golding will be a very rich man now that he owns the rights to

the inventions and share-holdings of the late Sir John, even after paying two very heavy sets of death-duties.

I imagine that both the persons here who call themselves Sir John Williamson and Mrs. Golding will at once appeal, since he can claim that he has at a stroke lost the entire benefit of his life's work, and she can claim that, although she now has her wish in that she is not married to Mr. Golding, she is unable to claim any payment of maintenance from him.

Both these persons are cast on the world without a penny except for what they have earned since their last appearance at the receiving end of a transmitter.

I dislike this result, but as the law stands it flows inevitably from my finding of fact.

I must warn the person now known as Sir John Williamson that as, so I am informed, he has passed through a transmitter since the knighthood was granted, he is not entitled to represent himself as a member of that Order.

He must cease to consider himself as connected with Williamson Electronics or as entitled to use its patents, except as permitted by Mr. Golding.

The lady now known as Elisabeth Golding is not the late Elisabeth Golding, wife of Harold Golding.

She cannot claim anything from Mr. Golding, and is free to marry.

The bigamy case against Mr. Golding also falls to the ground. I understand he has married a lady who until recently was the secretary to the late Sir John Williamson.

I am not happy about this. It is my belief that if the law develops along the line which it must obviously now follow, in the future a case might lie for a charge of manslaughter or even murder against anyone inducing someone to step into a matter-transmitter.

Nor is this the end of it.

I am informed that before this question was raised publicly at least one Reigning Monarch, the whole of His Majesty's Privy Council, the President of the United States of America, many of our leading industrialists, the greater part of the members of both Houses of Parliament, and many others, had all stepped into this devilish machine.

The law cases, costs, civil disturbances, and appeals resulting from this case will go on for a generation.

Mr. Golding has produced a real lawyer's benefit of a case.

Probate granted to Mr. Harold Golding to the estate of his late wife Elisabeth Golding.

Probate granted to Mr. Harold Golding to the estate of the late Sir John Williamson.

Costs of the joint action to be borne by the estate of the late Sir John Williamson. ■

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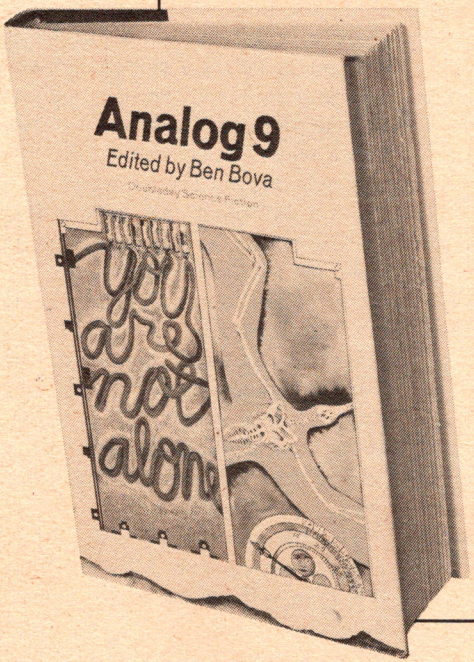

This ninth anthology of the best stories from ANALOG features outstanding science fiction stories originally published in the magazine from 1970 through 1972; the last two years of the late John Campbell's editorship and the first year of Ben Bova's. Contents include:

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ONLY THE FACTS, MA'AM

In science fiction, good writers go to a lot of trouble to achieve a "willing suspension of disbelief." Sometimes I wonder why they bother. Man, it seems, is an animal with an inbuilt wish to believe—to believe anything which does not oppose his already fixed convictions. At the drop of data, he believes. He finds no strain at all in believing any number of impossible things before breakfast. And, unfortunately, the more fantastic the claims, the more quickly he will believe.

Science fiction readers may be somewhat more critical, but I'm not aware of much evidence. If an article states that the amount of fusion fuel needed to gain a velocity of one-tenth that of light is not seriously affected by relativistic considerations, nobody seems to question the assertion, though it could be checked on many of the better hand-calculators. (It would be almost true, if *all* mass were converted to energy, and that converted to velocity with perfect efficiency; but don't try it with fusion-powered rockets!)

When "scientific research" is mentioned to justify using ESP in a story, few bother to look up the research papers; and of those, fewer still bother to determine what the real mathematicians made of the casual claim that the results violate mathematical probability. When the "Dean Drive" was hot stuff in science fiction, how many readers looked up the patent application to see what the maximum real claims for the gadget were? Most defenders of Velikovsky never check on the need for the conservation of angular momentum; and those who refute him angrily usually have not read his books.

"Don't take my word for it; read it right on the label!" Or in the words of Kipling's Tomlinson: *"This I have read in a book," quoth he. "And this it was told to me; and this I have thought that another man thought of a prince of Muscovy."*

Of course, things are much more pleasant to believe when they involve huge mysteries, universal unknowns, or what the scientists and experts are too narrow-minded to accept. So automobiles can run on

nothing but water and mysterious pills. (Sure, but acetylene is neither cheap nor desirable as fuel.) And flying saucers deliver great messages to the favored. (Anyone ever check to see what George Adamski was writing before he got those great messages?)

Of those who write books on such subjects, many (though by no means all) are honestly presenting what seems to them the evidence. But the trouble is that most of them seem to have no idea of how to research for facts. They blindly accept almost anything that has been written before. They don't seem to realize the need to go back to the original sources; and I'm afraid most of them have no idea of what original sources there might be. So they take whatever they can find most easily, and garbage in gets piled on garbage in—with the load of garbage out increasing for the next writer to find.

Of late, there has been a spate of books on the great mystery of the Bermuda Triangle, a misnomer for a kite-shaped area covering a vaguely-defined area southeast of the coast of Florida. There, we are told, all kinds of fearsome things happen; compasses go mad, pilots lose orientation, and ships and flights of airplanes disappear with astonishing regularity. Nobody can determine why all this happens; as usual, the experts are baffled and merely cover up. But there are hints at some great disturbance of gravity, magnetism, or some such. The latest book on this subject of which I know (which also includes discussion of all sorts of other garbage-mystery) has become a national bestseller, and TV producers are duly impressed.

Finally, however, a book has appeared, written by a man who knows how to look things up—and where to find them. This is **The Bermuda Triangle Mystery—Solved,** by Lawrence David Kusche (Harper and Row, 302 pp., $10.00).

Mr. Kusche is a reference librarian, trained in research work. His interest in the Triangle Mystery is neither as an advocate nor adversary, but simply as a trained man, attempting to determine what facts are available. The book began as a result of his receiving constant inquiries from those using the library for information on the subject. When he found that the real facts were almost nonexistent, he resolved to find them. Very definitely, in most cases he did!

He begins by covering the general legend about the mystery, giving the story as it is usually listed. He then takes each incidence, recaps the legend covering that, and then cites the facts as they can best be found from the original sources—official investigations, the first newspaper accounts, journals of the shipping trade, and in some cases eye-witness accounts. The research done for the book is a superb example of what should be done by any man attempting to cover a series of fairly modern events. At the end, he sometimes adds his own summary of what he has determined.

At no time does he seem interested in either defending or destroying the legend, but only in de-

termining what is true. When the loss of a ship or plane cannot be explained, it is simply left as a mystery. In the whole book, I found only one case where he posited his own solution to a mystery that could not otherwise be determined by the researched facts; and in that case, the conclusion he drew was tentative and about what any informed reader might decide.

There are two final chapters, one of which is devoted to the elementary use of the compass and the deviation caused by the fact that the needle points to the magnetic, not geographic, pole. This is probably necessitated by the amount of nonsense that has been written about magnetism in too many other books. And the final chapter simply sums up his conclusions after completing his research. These are conclusions that will probably have been reached by most intelligent readers, though it was necessary to state them.

In a way, the title of the book is a misnomer; there is no solution to the mystery, simply because it turns out that there is no real mystery.

But some of the cases show remarkable evidence of just how bad previous research has been. Many of the cases cited did not happen near the loosely-defined Triangle, but seven hundred or more miles away. Some occurred around the Azores, one directly east of Boston, another in the Pacific instead of the Atlantic. Some of the sunken vessels were never known to sink. Bill Verity, who supposedly disappeared mysteriously in 1969, is still alive and well! The lost *Jillie Bean* casually cruised into Miami a few days after being reported missing. There is no record at all of a Piper Apache ever vanishing. Many of the events that are usually listed as occurring during calm weather actually took place during storms where the wind was of gale force. And finally, the most famous disappearance of a flight of five Avenger torpedo bombers did not much resemble the disaster as it is usually told.

Many of the true believers, of course, will not be convinced by the book. The will to believe in mysteries is far too strong. But I hope the readers of science fiction will be a little more willing to accept things as they are—otherwise, how can we ever learn to accept things as they will be? Why not get one of the popular books on the Triangle and compare it with the facts in Mr. Kusche's report of what real research shows? Then think hard about the next popular mystery or wild discovery!

In any event, this is a book I value highly and recommend in no uncertain terms!

There's another most curious book for those who are less than expert on most things but who want to know enough for a general understanding of today's world. This is **An Index of Possibilities,** by "the Catalog" (Pantheon Books, 292 pp., $5.95). Those pages, incidentally, are huge, and the price is a great bargain indeed. Usually a book with this amount of material would cost about $25.00.

This is a potpourri of a little of

everything. The subtitle indicates it deals with energy and power, which it does. But it also includes most things that only the cults would describe in those terms. There are articles on black holes, the drifting continents, the galaxy, how the Earth was formed, spaceflight, earthquakes, relativity, and most of the more esoteric realms of physics and many other sciences. There are also articles on meditation, yoga and zen, the hollow Earth, hypnotism, shamans—and more and more.

It's a book where a tremendous range of subjects is covered, with the result that each subject has to be given a rather short treatment. Yet there was obviously considerable care in the preparation of the articles. In those that interested me, I expected and found a rather elementary treatment; but there was always enough detail to inform a general reader—often more than can be found in much longer discussions. The treatment was necessarily simple, but usually quite good. As an example, the article on relativity was a good deal better than the whole of some of the popular books I once read on the subject. And the matter of mass increase, time dilation, and shortening of length was treated with the formulas that would help anyone knowing elementary algebra to get some idea of the effects of a given velocity. Much too simple (and even simplistic) for a trained relativist, but much better than most articles on the subject for the layman.

It's a catalog of ideas on all sorts of interesting things. Much of it makes rather fascinating reading; it should provide good browsing material for a month of discoveries. And for those who want to know more, there's an excellent reference appendix, listing available books. A few of those books even provide information in how to do research for facts—and what sources are available. There are also sections labeled "Access" which list sources for information on particular subjects.

I found the book slightly maddening in the things it lumped together in one volume—but all in all, a fascinating one. At the price, nobody should miss it.

The publisher tells us that it took Michael Kurland three long years to write **The Whenabouts of Burr** (DAW Books, 158 pp. $1.25). I wonder why.

Facts and research may not be exactly the *sine qua non* of science fiction, but the equivalent detail and organization are. A writer of any worth (and I've liked some of Kurland's stories very much) should be as accurate about his time and place as a historical writer would try to be about his. Yet Kurland can't keep either real history or his future history straight. He tells us that Victor Gosport was elected in 1996. Then he has a man who serves Gosport some time after Gosport took office tell that he's from 1996! No mention that Presidents take office the same year they're elected, so we should expect Gosport to assume office in 1997—and that this would be perhaps

even later, from events that have happened. There's even a hint that the writer thought it was six years later. To wit:

He tells us that a replacement for the Constitution is *also* 226 years old. Now, apparently Kurland assumes that the Constitution was written in 1776. (It wasn't; the correct year was 1787!) That would make the year 2002—or if the correct date for the Constitution is used, 2013—seventeen years after Gosport was elected! Did it really take three years to figure that out and do all that research on the Constitution?

The basic idea for the novel is rather good. One day it is found that the Constitution (signed by Alexander Hamilton) is removed and one seemingly equally authentic but signed by Aaron Burr replaces it. No evidence that the safeguards were upset. Impossible, but there it is. Then coins turn up that make Burr Emperor of Mexico in 1821, and stamps that indicate he was once President of the United States. Two men are sent out to investigate, and they discover a strange machine, meet Hamilton, and so on.

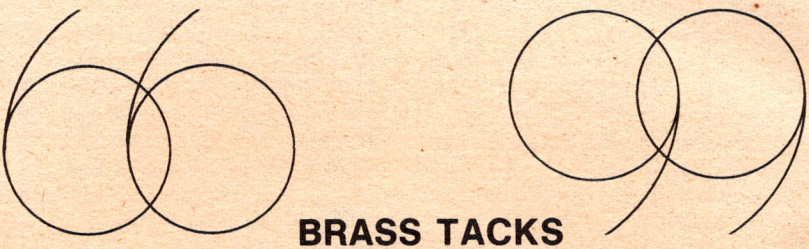
Unfortunately, the intent here seems to be to be humorous. Now humor is possible in science fiction, as Anderson, Tenn, and others have proved. But it must be humor of a truly funny or amusing situation. In this novel, however, it is the humor best described as funny writing. It's funny-hat stuff, where a Russian woman straight out of *Ninotchka* is used as a national stereotype to tickle our funny bones. Word play, funny names, distorted character, overstatement—that type of stuff.

And naturally, since this is humor, the plotting doesn't have to be too interesting. Things can just happen, provided they are amusing. (Wodehouse would have been surprised to find that humor didn't require tight plotting.) So we have an ending where the solution to everything is achieved by a much too simple means.

Some of the novel is amusing, and several of the incidents are interesting. But if this book took three years, I think Kurland should toss his next off in three months—the result might be much better.

And for a writer who really specializes in getting his facts right and consistent, we can turn to Larry Niven. Ballantine Books is issuing his works in a new, uniform edition, with covers by Rich Sternbach (who has recently appeared frequently in Analog) and end papers with drawings by Bonnie Dalzell showing some of Niven's aliens. **Tales of Known Space** (256 pp., $1.50), gives us the other stories in the universe of *Ringworld.* The cover is a star map of Niven's universe. There's a complete bibliography, and a chronology showing which story came when, as well as an introduction to this world of Niven's.

It shows how valuable research can be, even when that research is only the careful, detailed study of one writer's private ideas. Niven never does his stories without considering everything! ■



BRASS TACKS

Editor's Note: Will Jenkins, known to all of us as Murray Leinster, died June 8, at the age of seventy-three. The following letter is neither an obituary nor a eulogy. It is the heartfelt memory of a friend.

Tribute to Will F. Jenkins—Sunday, June 8, 1975:

In 1969 I was in the Disclave hospitality suite. An old gentleman was quoting, "When Wellington whipped Bonaparte, as any child can tell. . . ." I'm a Gilbert and Sullivan addict, and nothing could have prevented me from chiming in with, "The house of peers, throughout the war, did nothing in particular, and did it very well." The old gentleman figured that a G & S fan couldn't be all bad, and a six-year friendship began. He was Will F. Jenkins, better known as Murray Leinster. His passing . . . was a loss to the science fiction world, and a personal loss to me and my family.

He was not only the author of over a thousand novels and stories printed in many languages. He was not only an author who wrote at the science fiction "state-of-the-art" or ahead of it between 1916 and 1968, not only "the lackey of Wall Street" who caused the Russians to write their own version of "First Contact" as a reply to his story, not only a Hugo winner, not only "The Dean of Science Fiction." He was what the Indians call "Mahatma" that one person in a million who is a great soul. He was a person who by his very presence brought out the best in the people around him.

In 1970 a VW beetle pulling a U-Haul-It trailer, returning from a camping vacation, pulled up in front of an old house on the banks of the York River in Virginia. The lady of the family was mad because of the long detour to see a crazy science fiction author. She met a gentle man, who won her over in minutes with his warmth and courtesy. The two daughters of the family found a new grandfather who showed them how to blow tough-skinned soap bubbles by

mixing detergent, glycerin, and water. His house is worth mentioning because it reflected him. It was a wonder. It was filled with books on every conceivable subject. The dining room table was covered by a photographic experiment. Upstairs were two bedrooms. A table in the small upstairs hall was covered with original editions of the *Oz* books. Part of the backyard that stretched to the river was fenced off for the two ponies that he kept for his granddaughter, Beth. They would come at his call and eat from his hand. Finally, on the closed-in porch where he slept, were copies of his books, together with the only Hugo I have ever seen close up, and art originals, among which were works by Virgil Finlay and Kelly Freas, illustrating his stories.

He had a wealth of information on all branches of science, philosophy and the arts. He had the equivalent of several college educations although he did not possess a degree. He stayed at my house during Disclave '74. We sat up until four o'clock one morning discussing theology. Despite his being a Catholic, and my being Jewish, we could find remarkably little to disagree about. His concept of the Day of Judgment was highly original to me. The worst possible punishment a sinning soul could face was being *allowed* to deny God. But he was never all serious. He had a great deal of wit and charm. He loved a funny joke, or a limerick.

I felt that being away from people of wide interests like his own was depressing for him: he should get out and meet his public. I persuaded him to attend Disclaves '73 and '74. My ruse was to get him into the center of things, then abandon him to his public. He was constantly surrounded by admirers of all ages. After Disclave '74, his health began to deteriorate. It did not permit a trip to Discon II. A stroke affected his ability to communicate, but he won that back again. Then pneumonia with a fifty-fifty chance of surviving. He recovered from that. On May 5, I felt what amounted to a compulsion to drive down to Gloucester, Virginia to visit him in a nursing home. His health was good, but his attention span was short, and his lucidity came and went. I tried to break through to him in terms of his interests. I sang "Tit Willow" from the *Mikado;* he came in on the chorus. I recited "The Old Man From Capri." He joined in with ". . . and a purple goatee." I told him about "The Storms of Windhaven" in a recent Analog. He immediately asked how the people were able to fly . . .

Here was a man who loved people, loved life, loved knowledge, and never ceased to learn. Now he is at one with the universe, that in life, his thoughts roamed freely. Say a prayer, if you will, for him, or thank the Good Lord for having blessed us with his presence. If you don't pray, think a few kindly thoughts, for . . . a little of the glory of world has passed.

JIM GOLDFRANK
10516 Edgemont Drive
Adelphi, Maryland 20783

Dear Ben:

Regarding your Editorial in the May 1975 issue, "By Their Fruits":

"Can you picture any recent candidate . . . facing an issue so straightforwardly?"

Yes, I can! John Hospers' 1972 Presidential campaign and his 1974 California gubernatorial campaign. The 1972 Libertarian Platform was boldly and specifically pro-rights, and Dr. Hospers spoke plainly and directly.

The problem, so perfectly exemplified by your Editorial, was that so few people even *thought* of looking elsewhere than to the Republicans or the Democrats for a candidate. This, despite the dedication of both parties to *avoiding* ideologies. This non-philosophy, called Pragmatism, by its nature, must produce candidates like Nixon and Agnew. After all, would a *moralist* politician desire to run in a party dedicatedly *amoral?*

Of course, major communicators, in both electronic and printed media, for the most part, report only on the popular and the picturesque politicians: they want large readerships/audiences. They aren't likely to report on such "dull" people as a USC professor who speaks of rational solutions to our problems.

Those who want politicians with ideas must seek them: you won't find them on a silver platter (or, particularly, on a TV tube).

KENNETH H. FLEISCHER
2642 South Bentley Avenue
Los Angeles, California 90064

How do we get the major parties, and the press and public, to nominate candidates who take positive stands on the issues?

Mr. Bova:

Please accept my commendation for your beautiful Editorial in the May 1975 issue of Analog. I found myself profoundly moved by your words, as they expressed my sentiments as well.

The shortsightedness of our leaders and our people does not augur well for our Republic. Where is courage? Where is reason? Where is the true patriot? In their place there is only political expediency, self-serving rhetoric, and gross stupidity.

I can't speak for others, but I'll not let my own disappointment lead me to surrender to the forces of political witlessness. Knowing that there are others like yourself who care and are willing to carry on the good fight helps my morale.

RONALD L. LOMAS
Bowling Green State University
Bowling Green, Ohio 43402

Our form of government works only when the citizens participate. Get active in your local political organizations. Keep informed. Write, phone, or wire your Senators and Representatives on issues that you are concerned about. Don't wait until you see the whites of their eyes.

Ben Bova:

. . . The cause is your Analog Editorial for May.

I have always loved this country and was raised on the principle that this is "the land of opportunity." I have always believed this was so and that belief gave me the

courage to try to be the best kind of man possible. I never took for granted the fact that I was alive, and always felt I understood men such as Hale and Kelly and Schmidt. I believe they loved being men; I believe they loved doing the very best they could. Anything less was not acceptable.

Your Editorial reminds me that it is possible that other men could fight to give someone like myself the opportunity to fulfill my highest aspirations. In a way I'm being protected, by their effort, their will, their courage; I'm still being protected by their love.

I can do only the best I can, but I believe each would say, "Yes, good work." It is only in the context of liberty that such work can be done and in which, I can survive to do more.

And so I can only say, "Thank you" for reminding me of those men, and that the dues I pay aren't so high.

LEONARD DIAMOND
737 Bush Street, #B-1
San Francisco, California 94108

It's just as important to live and work for a decent, just, and admirable society as it is to die fighting for our nation in time of war.

Dear Mr. Ben Bova:

Captain Colin P. Kelly, Jr. did not dive his B-17 into a Japanese warship. The story that he flew his B-17 down the stack of the Japanese battle cruiser *Haruna* is one of the most bizarre myths of World War Two. The truth of the matter is this: while returning to Clark Field after an attack on Japanese shipping, December 10, 1941, the bomber piloted by Captain Kelly was attacked by a Zero fighter and badly damaged. Kelly managed to hold the airplane under control long enough for the surviving members of his crew to escape, but before he could parachute to safety the bomber exploded and crashed. They did attack, possibly successfully, a Japanese vessel that was reported in an official communique to have been the *Haruna*—such was the crew's honest belief, although no Japanese battle cruisers were in the area. Colin Kelly was a genuine hero—he was awarded a posthumous Distinguished Service Cross—and it does no justice to his memory to repeat the incredible tale of his sinking the *Haruna* in a kamikaze-style attack.

WILLIAM R. HAMBLEN
946 Evans Road
Nashville, Tennessee 37204

As with most myths, the actual events are at variance with the story, but the spirit of the story is what people remember.

Dear Mr. Bova:

One sentence in your Editorial of the May issue reminded me of a conversation I had in Japan in the early Fifties. It was with an elderly Japanese, an ex-teacher, who was able to make sense of my textbook Japanese grammar.

We both spoke slowly, enjoying a pot of sake. He would inhale the fragrance of his cup, look into the distance, and answer with a wisdom and candor which was very impressive to me as a nineteen-year-old sailor . . . and perhaps

even more impressive to the forty-six-year-old writer of this letter.

I remember asking, "How could the people of Japan ever be led into World War Two?"

His answer, when it came, was, *"Daijobu."*

Freely translated, it meant, "You don't care. Don't worry."

He said it permeated every level of their society. If you were short-changed, "Don't worry." You might be branded as a troublemaker. If you didn't like what the Diet was doing, "Don't worry. Don't bring government attention to yourself."

If you felt the country was on a path of self-destruction, take care of your family and business, and "Don't worry" about anything else.

You said, in referring to the pre-Nixon era: ". . . the national political stance had become, 'Here's your slice of pie; don't worry about anything else.' "

I have often felt we were developing a rather strong *Daijobu* society in the United States. Your Editorial expressed my feelings very well. I think it can be changed . . . if we're granted the generations we'll need to educate, but I feel it can be done. . . .

HAL SWIFT

905 Oxford Avenue
Sparks, Nevada 89431

Perhaps the Bicentennial celebration will help remind us of Americans who did worry—and acted!

Dear Mr. Bova:

I am surprised that a time-traveler such as you would resort to old saws and tired homilies in describing our national situation. Such broadsides may have the appearance of incisive criticism but are so vague that they fail to inspire constructive action. While I agree that something must be done about the national condition, your cosmic pronouncements on my Government fail to move me. I can find the same sort of amorphous proclamation in virtually every publication. Their effect is to drive the general populace into the directionless frenzy, only exacerbating the situation. As an alternative, I offer the following.

(1) Politics *is* winning elections, first and foremost, and in spite of the various statistics on voter apathy, the ballot is the single vehicle by which an elected official can gauge his effectiveness.

(2) You have grossly inflated Mr. Nixon's ability to magically divide the country into squabbling pressure groups; he was a master opportunist to exploit an already existing condition, but that is quite a different matter.

(3) "Leaders who can lead" (otherwise known as those with charisma) rate far down on the list of Things We Need. Government should be by nature contemplative; I am not anxious to be "led" into another Bay of Pigs or Vietnam.

(4) I don't take as gospel that it is necessary to have a vital interest in "the workings of government." To do so, I would change my profession to politician.

It is my observation that we have allowed a conglomerate, otherwise known as the Government, to take control of our tax dollars. Being a monopoly, this bureaucracy must

answer to nobody; it is folly to assume that our elected officials have the time to properly oversee its functions. In fact, it is much more permanent than they, and its intransigence is assured by Civil Service.

A second mistake is to assume that any collection of Federal experts can ever devise solutions to our incredibly complex assortment of problems (or, conversely, that they would ever be able to destroy our Republic through incompetence).

As for remedial action, I recommend the following. Intelligently select a candidate, send him to Washington, then forget about him. If you must, write him letters; a staff member will read them and send form replies. Stop watching the local TV news; its grotesque preoccupation with tragedy will warp your perception. To find out what's happening, get out on the street and meet people—*they* are the news. Devote yourself to local events, and join your neighbors in solving local problems; the experimental flexibility afforded by such small groups is imperative. Only when people develop the ability to devise their own solutions will we be able to begin dismantling our enormous Federal bureaucracy.

Finally, what is needed is not heroes, but rather, ordinary people working together. Great sacrifice may get you a minute on the news, but we must husband our strength for a sustained effort . . .

RICHARD R. GOVEA
2771 South Court
Palo Alto, California 94306

In other words, return to 1775. It didn't work the way you describe it then, and it won't work that way now.

Dear Ben:

I read your May 1975 Editorial today with great interest and with much agreement. You're absolutely right in your discussion of what's wrong with this country, but a little buzzer sounded off in my head when you talked about the perversion of our Founding Fathers' original ideas. The past is often distorted and our country's history is no exception.

The men who formed this nation were taken with the idea of what was then known as "liberal democracy." Knowing that a true democracy would never work in such a large country, they naturally turned to the liberal democracy, where the people would elect qualified representatives who would then run the country for them. But there was a problem. Since most of the country was rural, and most of the people were common workers, how could the people know enough about politics and running a country so that their elected representatives would truly be qualified. They couldn't, so the leaders convinced themselves that only intelligent, well-read and well-traveled people should be allowed to vote. For the good of the country, of course. Thus, only white male landowners were permitted to vote, not the people.

Now, I agree that this decision looks superficially good, but too often the public has been treated like a bunch of children, and maybe,

just maybe, we wouldn't be in this mess right now if the country had started right off as a government run by *all* the people, not just the rich. The power started off in the hands of the rich, and it's still in the hands of the rich.

The point of all this is that we really shouldn't glorify our Founding Fathers as much as we do, and as much as you do in your Editorial.

They may have had the right idea, but they were far from perfect.

TONY CVETKO
29415 Parkwood Drive
Wickliffe, Ohio 44092

The point is that the Founding Fathers were perfectly well aware of human fallibility, and tried to set up a system that took such frailties into account. They originally restricted the voting franchise to citizens whom they thought would be responsible voters. In that day and age, this meant men of property. Over the past two centuries, the franchise has been extended to every adult, and even the minimum age of "adult" has been changed to eighteen. But the underlying assumption has always been that the voters were responsible citizens. This has turned out to be a fallacy, right across the board, from landed gentry to urban ghetto dwellers. American voters take practically no interest in politics, until something as horrendous as Watergate reminds them of their responsibilities.

Dear Mr. Bova:

"The Storms of Windhaven" is by far the best story you have published yet this year. I hope to hear some more about Windhaven in the near future. "Nascent" and "Two Heads Are Better Than One" are almost as good . . .

Your Editorial is much better than usual. It really set me thinking, especially those last six paragraphs.

This month's cover is the best one since the one for "People of the Wind" some time ago; it is really great. It made me want to be there; I could almost feel the wetness of the sea, it was that good . . .

DONALD ROBERTSON
22 Kelston Road, Whitechurch
Cardiff, Wales CF4-2SJ
England

More Windhaven stories are in the works.

Dear Mr. Bova:

Thank you for W. Macfarlane's excellent "Country of the Mind," in your May 1975 issue. For four years I have been waiting for the denouement of the Ravenshaw stories published in your pages in 1970 and 1971. The result exceeds my expectations, not only in *commodity*—the plot is a convenient and functional vehicle for exploring the practical and moral consequences of the ability to travel at will between parallel worlds—but also in firmness of characterization, and in delights of terse style and felicitous phrase.

In your July 1974 Editorial you commented at some length upon your Editorial policy and upon science fiction, in the Astounding/Analog sense, as the "literature

of ideas." One of your points is that in some ill-constructed stories the content is little more than a clever idea, clothed with the ghost of fiction by the addition of minimal plot and characterization. Such stories are mercifully rare in Analog—the last one I can recall is a trifle entitled "The Astounding Dr. Amizov," in the January 1974 issue. But equally rare in the science fiction field are stories which effectively combine plot, ideas, and characterization as Macfarlane does in the Ravenshaw series, to make the reader *think* while he is being entertained . . .

I have a suspicion that a good many Analog readers find such demanding fiction uncongenial and prefer straight action stories with uncomplicated heroes who illustrate an obvious thesis. I like such stories myself; they're great to relax to. But if you are serious about Analog as a forum for the literature of ideas, I hope you will keep a place for occasional stories like Macfarlane's or Heinlein's which allow the characters to have attitudes and opinions beyond the bare demands of the plot. If science fiction is to be a literature of ideas in the fullest sense, good plot ideas are not enough; more authors must allow their characters' ideas, perceptions, and feelings to challenge the thinking reader as he reads.

F. T. KIRKWOOD
47 Hazel Street, Apt. 2
Ottawa, Ontario, Canada K1S OG1

Amen!

Dear Mr. Bova:

You continue to receive and publish letters on "how Analog has

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changed since Mr. Campbell died." Well, here's another, though more like a vote than an essay.

Simply, Analog's doing fine, it seems to me. Not every story is to my taste . . . now or previously; I expect that. I think I enjoy reading Analog as much as ever.

This letter happens to be prompted by my enjoyment just now of reading Algis Budrys' essay on Isaac Asimov. Too, The Reference Library is as good as ever!

RICHARD RAWSON
526 Page Street, Apt. C
San Jose, California 95126

A. J. thanks you, Lester del Rey thanks you, and—of course—I thank you.

Dear Mr. Bova:

I'm dumbfounded. One NEVER learns anything from a . . . book review. But I learned something—maybe even something valuable—from Algis Budrys' wise, thoughtful, and penetrating piece on Isaac Asimov. This has to be one of the most enjoyable literary essays I've run across in any magazine in quite a long time.

For one thing, I learned, and in great detail, why it was that I always bought the whole package in Asimov's early fiction, particularly the *Foundation* stories, and enjoyed them uncritically. For another, I—and presumably quite a number of other people—got a splendid object lesson in how to write a book review, be it of new stuff or books twenty years in print. My thanks to you and to Budrys . . .

GEORGE WARREN
15722½ Vanowen Street
Van Nuys, California 91406

THE ANALYTICAL LABORATORY

The AnLab is your chance to tell us which stories you like best, and thereby reward your favorite authors with solid cash. It works this way: send us a card or letter with a list of the stories in each month's issue, ranked in the order in which you preferred them. We average the votes and publish the results here. The story that comes closest to having an average of 1.00 (which would mean it received a first-place vote from everyone voting) earns its author an extra one cent a word: $100, in the case of a 10,000-word novelette. The story in second place receives a half-cent extra per word.

July 1975

Place	Title	Author	Points
1	Doorways in the Sand (Pt. 2)	*Roger Zelazny*	1.986
2	And Seven Times Never Kill Man	*George R.R. Martin*	2.381
3	Down on Banderlog Farm	*Robert Borski*	3.259
4	All the Charms of Sycorax	*Alan Brennert*	3.584
5	None So Blind	*Hayford Peirce*	4.090
6	Ageism	*Walter L. Fisher*	5.272

Budrys' essay was not really a book review, but I agree that it was rather special.

Dear Ben:

Early next year, the New England Science Fiction Association will be publishing the *Noreascon Proceedings*—the complete transcript of the main program of the 1971 World Science Fiction Convention. The Noreascon program included talks and panels on science fiction with Clifford Simak, Larry Niven, Ben Bova, John Brunner, Robert Silverberg, Isaac Asimov, and many others; a eulogy of John W. Campbell given by Lester del Rey; and talks on scientific topics, such as weather modification, solar energy, and artificial intelligence. The *Proceedings* will also include photographs of the convention and lists of award winners.

. . . We have had some difficulty contacting all Noreascon members because so many of them have changed their addresses since the convention, so we request any Noreascon member who has not heard from us to please send his correct address to the New England Science Fiction Association, Box G, MIT Branch Post Office, Cambridge, Massachusetts 02139.

LESLIE J. TUREK

Ah yes, I remember Noreascon well!

Dear Mr. Bova:

I have never written to this or any other science fiction magazine before, but feel that I should this time, in order to air my views in regard to some of the letters you and other science fiction magazines receive. I read, eat, breathe and sleep science fiction (ask my wife, I've even driven her to reading it) and feel that I'm as entitled to criticize it as any of your readers. This I choose not to do, however, because, contrary to the popular belief that you have to have criticism in order to have good stories, I believe the reverse is also true. I have been reading science fiction most of my thirty-two years, thus I've been exposed to some of both the old and the new, and believe me, I've seen what I'd consider good stories criticized out of existence. What ever happened to the days when people just bought what they liked and didn't buy what they didn't like. Let's face it, for every reader who thinks a story stinks, there's one who thinks it's wonderful. No story that's ever written is going to please everyone. I've seen some readers get so out of hand as to criticize undotted *i*'s and uncrossed *t*'s. In my opinion they're not looking for good science fiction to read, they're just looking for something else to criticize. I've never had to search very hard to find good stories, because they've always been around. And I'm sure that this applies to those so-called critics who damn a story just because they don't like it themselves.

CHUCK W. ROLANDS
409 Stewart Street
Rockwood, Tennessee 37854

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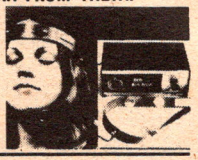

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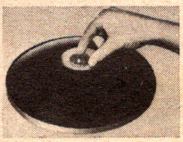

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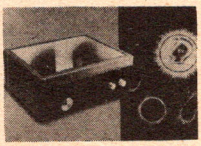

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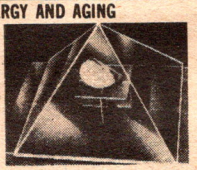

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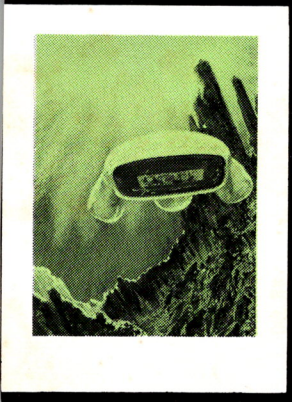

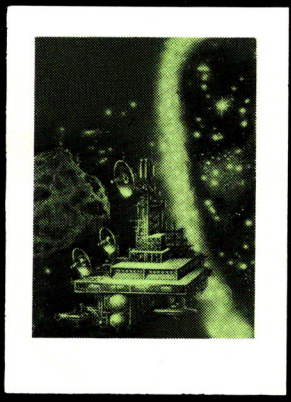

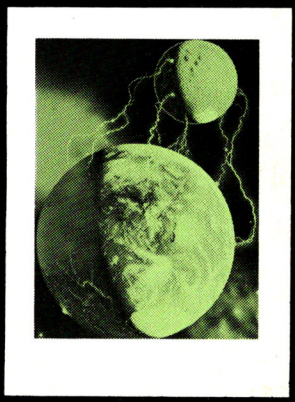

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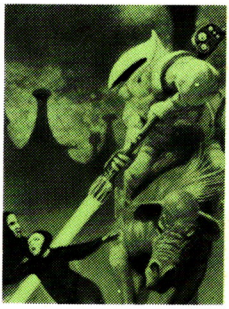

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